U.S. Fish & Wildlife Service Winter 2014

Fish & Wildlife News

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As part of a continuing effort to save money and better serve readers, the *Fish & Wildlife News* is bulking up its online presentation. It remains available as a free PDF at <fws.gov/home/fwn/newspdf.html> and is now, on a trial basis, available on <zinio.com>. The Zinio version is tablet eady and costs $2.99 per issue. We are also working on more online presentations, so stay tuned.

Each address will be receiving a post card in the near future to update the address mailing list and quantity.

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ON THE COVER: DESOTO NATIONAL WILDLIFE REFUGE IN NEBRASKA AND IOWA. CREDIT: USFWS

A Global Crisis Demands Our Leadership

The numbers alone are staggering. As many as 35,000 African elephants were killed in 2013. At the current rate, poaching could cost us one fifth of Africa's elephants over the next decade. More than 1,000 rhinos were slaughtered last year just in South Africa, three times as many as were killed in 2010.

Global demand for elephant ivory and rhino horn continues to rise—both are sought-after carving material, and rhino horn powder is used under the misguided notion that it cures ailments from hangovers to cancer. This demand is fueling a poaching epidemic of horrific proportions in Africa by well-armed, well-equipped, organized criminal syndicates.

The loss of these animals is an ecological disaster. It's also a devastating blow for the people of Africa, many of whom make a living from ecotourism. And it takes a very human toll: During the past few years, hundreds of park rangers have been killed in the line of duty.

But wildlife trafficking is certainly not restricted to iconic species—or to Africa.

Last year in the deep forest of Thailand, a ranger was shot dead in an encounter with a group of poachers transporting illegally logged Siamese rosewood. In the United States itself, poachers illegally take plants, such as ginseng, and animals from paddlefish to eagles.

Much of the world's trade in wild animal and plant species—both legal and illegal—is driven by U.S. consumers or passes through our ports.

We have an obligation to respond, and we can't ignore this global problem. If you need further incentive, consider: Poaching often lines the pockets of terrorists. And those same criminal cartels are often also engaged in drug, arms and human trafficking.

The criminals have raised their game. Now we are raising ours.

We know the United States can't save these species alone—conservation of species depends on the international community coming together to stop poaching, derail trafficking, promote on-the-ground conservation and reduce demand. But we are leading by example.

In this issue of *Fish & Wildlife News*, you'll read about our Ivory Crush last November. The United States raised global awareness of the poaching and trafficking crisis when we crushed six tons of our seized ivory—an action since replicated by France, China and Chad. Hong Kong and Belgium have announced their intention to follow suit.

Operation Crash, our undercover law enforcement action that brought down two global rhino horn smuggling rings, continues to bring guilty pleas. And we are working relentlessly to dismantle other trafficking networks and arrest those responsible. We are also posting Service law enforcement officers full time in other countries.

U.S. leadership took a great step forward last July when President Obama issued an Executive Order to enhance coordination of U.S. government efforts to combat wildlife trafficking and assist foreign governments with capacity building.

This order directed the formation of a Presidential Task Force on Wildlife Trafficking, co-chaired by the Secretaries of State and the Interior, and the Attorney General, and of an Advisory Council on Wildlife Trafficking, consisting of experts in the areas of law enforcement, conservation, communications, economy and diplomacy.

In February, President Obama signed the National Strategy for Combating Wildlife Trafficking. Immediately following, Secretary of the Interior Sally Jewell announced we would pursue a ban on commercial trade in elephant ivory and rhino horn.

We took the first step in implementing that ban at the end of February with a Director's Order to strictly enforce provisions of the Endangered Species Act and African Elephant Conservation Act designed to restrict international and cross-state trade in elephant ivory and rhino horn.

This struggle against wildlife trafficking and poaching won't be won in a day or a month or even a year. But we have a chance here and now to take action and ensure that elephants, rhinos and hundreds of other wild plant and animal species do not vanish from the wild. And we will lead the way to make that happen.

National Wildlife Refuges Bring in the Bucks (Money, Not Deer)

Laguna Atascosa National Wildlife Refuge in Texas has a budget of $801,000, but recreational visitors to the refuge produce nearly $30 million in economic effects—roughly $37 for every budget dollar allocated. Astonishing but not totally out-of-the-ordinary.

> *"Every dollar we invest in our Refuge System generates huge economic dividends for our country.*

America's national wildlife refuges continue to be strong economic engines for local communities across the country, pumping $2.4 billion into the economy and supporting more than 35,000 jobs, according to a national report released in early November by Secretary of the Interior Sally Jewell.

"In addition to conserving and protecting public lands for future generations, the report shows that every dollar we invest in our Refuge System generates huge economic dividends for our country," says Jewell.

The peer-reviewed report by the Service, *Banking on Nature*, finds that refuges contributed an average $4.87 in total economic output for every $1 appropriated in Fiscal Year 2011.

The *Banking on Nature* report used 92 national wildlife refuges for its economic sampling. Researchers examined visitor spending in four areas—food, lodging, transportation and other expenses (such as guide fees, land-use fees and equipment rental).

The National Wildlife Refuge System is the largest network of lands in the nation set aside for wildlife, with 562 national wildlife refuges—at least one in every state—covering more than 150 million acres.

Wildlife-related recreation fuels much of this economic contribution. The National Survey of Fishing, Hunting and Wildlife-Associated Recreation, which is published every five years by the Service, found that more than 90 million Americans, or 38 percent of the U.S. population age 16 and older, pursued wildlife-related outdoor recreation in 2011 and spent nearly $145 billion.

Among other key findings from the *Banking on Nature* report:

- Spending by refuge visitors generated nearly $343 million in local, county, state and federal tax revenue;
- National wildlife refuges are seen widely as travel-worthy destinations: 77 percent of refuge spending was done by visitors from outside the local area; and
- The combined economic contribution to communities nationwide is almost five times the $492 million appropriated to the Refuge System in FY 2011.

Besides Laguna, several refuges showed standout economic returns or jobs:

Wichita Mountains National Wildlife Refuge in Oklahoma, where recreational visitors support 1,053 jobs and produced $174 million—about $44 for every $1 in budget expenditure; and

Upper Mississippi River National Wildlife and Fish Refuge, spanning Minnesota, Wisconsin, Iowa and Illinois, where recreational visitors generated $226 million in economic effects—about $46 for every $1 in budget expenditure. The refuge also supports the greatest number of jobs of all sampled refuges at 1,394. □

Secretary Sally Jewell helps Minneapolis second-graders collect native prairie seeds during her visit to Minnesota Valley National Wildlife Refuge, where she released the report.

? MORE INFORMATION

Read the *Banking on Nature* report <1.usa.gov/HFKRys>.

USFWS

Landmark Study Reveals Low National Rate of Frog Abnormalities on Wildlife Refuges

An unprecedented 10-year-study by the Service finds that less than 2 percent of frogs and toads sampled on 152 refuges had physical abnormalities involving the skeleton and eyes—a lower rate than many experts feared based on earlier reports. This indicates that the severe malformations such as missing or extra limbs repeatedly reported in the media during the mid-1990s were actually very rare on national wildlife refuges.

"Frogs and toads are strong indicators of wetland and environmental quality. What affects them can affect a broad range of other species," says Service Director Dan Ashe. "This research significantly advances our understanding of amphibian abnormalities while amassing one of the world's largest datasets on the issue."

On average, 2 percent of the frogs and toads were classified as having skeletal or eye abnormalities, the types of abnormalities most commonly studied. The expected background range of zero to 2 percent skeletal/eye abnormalities was found at many refuges. Extra limbs were exceedingly rare: just 0.025 percent of all frogs sampled.

Concern about amphibian abnormalities became widespread in 1995 when middle school students discovered frogs with misshapen, extra or missing limbs at a Minnesota wetland. Since then, scientists have continued to report frogs and toads with severe abnormalities and documented global amphibian population declines, disease outbreaks and an increased rate of species extinctions.

The study, published in mid-November in the peer-reviewed online journal PLOS ONE, finds what it calls "hotspot clusters," areas of the country with more abnormal frogs than expected.

Regional hotspot clusters were found in the Mississippi River Valley (northeast Missouri, Arkansas and northern Louisiana), in the Central Valley of California and in southcentral and eastern Alaska, and abnormalities affected up to 40 percent of emerging amphibians in some individual samples in those areas.

TINA SHAW/USFWS.

FRED PINKNEY/USFWS

The study examined more than 68,000 frogs and toads at 152 national wildlife refuges, including ones from Cape May National Wildlife Refuge in New Jersey. (Bottom) This Pacific treefrog is missing a eye.

This study is part of extensive amphibian research funded by the Service that has advanced the science of amphibian abnormalities in general and helped scientists understand the causes of the abnormalities in Alaska and how to better manage refuges to prevent them.

Although this study was not designed to investigate the reasons behind amphibian abnormalities, the results strongly suggest localized causes. This is consistent with other research, some of which has identified contamination, predators, parasites or the interaction of these as potential factors.

It also does not address population status, but a study by the U.S. Geological Survey's Amphibian Research and Monitoring Initiative recently concluded that "U.S. amphibian declines may be more widespread and severe than previously realized, and that significant declines are notably occurring even in protected national parks and wildlife refuges."

The Service's Amphibians in Decline is the only federal government program dedicated to funding research and conservation of amphibians around the world. □

? MORE INFORMATION

Visit <1.usa.gov/AyTFu2> for more information and a link to the study.

WSFR Program Preparing Youth for Pivotal Role in Wildlife Conservation

The Wildlife and Sport Fish Restoration Program (WSFR), which for more than 75 years has supported wildlife conservation and restoration through its dedicated partners, is encouraging youth to get outdoors—whether it's a day of fishing and boating with family and friends, hunting in the calm of the wilderness or wildlife watching along a peaceful park trail—in an effort to help keep conservation and science going strong for the next seven decades and beyond.

The WSFR Program, funded through the excise taxes on hunting, fishing and recreational shooting equipment, and motorboat fuel taxes, promotes conservation by returning that tax money to the states, which use it to enhance wildlife recreation and hunting and fishing opportunities.

According to the latest National Survey of Hunting, Fishing and Wildlife-Associated Recreation, 38 percent of all Americans age 16 and older participated in wildlife-related recreation in 2011—an increase of 2.6 million participants from the previous survey in 2006.

Jami Bennett, 12, knows firsthand what it's like to appreciate the outdoors and conservation. She has taken hunter education and received her hunting license. She says she appreciates the lessons learned about the purpose of conservation. "I learned so much through my hunter education course prior to receiving my hunting license," says Jami. "I've since tagged three deer. When hunting you don't know what you are going to see. You might see turkeys, squirrels or deer—it's just so exciting!"

"You get quality time with your child without interruptions of television, phone and so forth," adds Ron Bennett—Jami's father. "I just want to share a passion that I have of hunting and fishing with my child. It's a rewarding experience."

Garrett Unbehagen began hunting and fishing when he was a toddler; now as a parent he is continuing the tradition by taking his sons out with him. "It was passed on to me by my dad, and to my dad by my grandfather…. And I'm passing it on to my two boys," says Unbehagen.

"Being outdoors shows the youth so much," he adds. "It gets them off the video games, out the house, and it keeps them out of trouble. I just want to carry that tradition on and hopefully one day my kids will pass it on to their kids."

The 2011 survey said hunters nationwide increased 9 percent to a total of 13.7 million—reversing decades of decline. The number of anglers grew 11 percent to more than 33 million.

COURTESY THE BENNETT FAMILY

12-year-old Jami Bennett loves the outdoors. Her mother works for the WSFR Program.

"These increases tell us that the outdoors is greatly appreciated," says WSFR Assistant Director Hannibal Bolton. "We must also be mindful that it's important for us to take the message to the urban communities," he adds. "We all have a responsibility to conserve our great natural resources and reach out to the youth who are our future conservationists. This is what we must do to continue the success of the WSFR program for another 75 years and beyond." □

KIM BETTON, Wildlife and Sport Fish Restoration Program, Headquarters

? MORE INFORMATION

Wildlife and Sport Fish Restoration Program
<wsfrprograms.fws.gov>

Recreational Boating and Fishing Foundation
<takemefishing.org>

Model Rat Control Program Provides Safe Harbor for Birds in the Caribbean

Sometimes, a single project can have a huge impact.

In 2013, conservationists from the Caribbean-based Environmental Awareness Group successfully completed the largest rat-eradication program ever attempted in the Caribbean, funded in part by the Service's Neotropical Migratory Bird Conservation Act. Populations of land birds, sea birds and other wildlife continue to rise on the 7,400 acres of habitat where the group removed invasive black rats using bird-friendly rodenticide.

The eight islands, part of the Offshore Islands Important Bird Area in the nation of Antigua and Barbuda, now provide areas where migratory and native birds can nest, safe from predators.

Over the past 500 years, invasive non-native species have contributed to half of all global bird extinctions. According to BirdLife International—a global partnership organization that designates Important Bird Areas—invasive species such as the black rat have a disproportionate impact on small island species.

The success of the Offshore Islands Conservation Program has sparked international interest and collaboration and provided a catalyst for similar conservation work throughout the Caribbean, spurring projects on many other islands containing Important Bird Areas.

The Environmental Awareness Group conducted a feasibility study for rat-eradication techniques on Redonda, Antigua and Barbuda's largest and most remote offshore island. Redonda is both an Important Bird Area and a potential candidate for World Heritage Site status. The island hosts substantial breeding seabird populations including globally significant populations of masked, red-footed and brown boobies.

NICK HOLLANDS

COURTESY OF NATALYA LAWRENCE

(Above): American oystercatcher. (Below): Environmental Awareness Group project coordinator Natalya Lawrence teaches students bird identification.

The study found that black rats were devastating the island's bird species, feeding on eggs and chicks and wiping out most of the island's native land birds. Project coordinator Natalya Lawrence says Offshore Islands Conservation Program partners are seeking funding to expand the rat-eradication and habitat restoration program to Redonda.

Anguilla's Dog Island is the largest island in the Caribbean to have been cleared of rats using the "Antigua techniques," and on Saint Lucia's Dennery Island, which was cleared of non-native mammals in 2012, the habitat for birds has already significantly improved. One of the Offshore Islands Conservation Program's partners, Fauna and Flora International, helped train rangers from Saint Lucia, Barbados and Anguilla in the program's methods and hopes to achieve similar results from their rat-eradication projects.

Although eradication of the invasive black rat has been its primary conservation focus, the program's outreach and education activities have proved just as important to the sustainability of the project. Training local residents in monitoring and eradication techniques has helped ensure the restorations can continue over the long term and increased the amount of data that can be collected on the program's results.

One of the program's most successful ventures has been the "floating classroom" concept, where schoolchildren go on birding and biodiversity field trips to the offshore islands to

experience and take ownership of their natural heritage. This campaign has been hugely popular in Antigua and Barbuda, improving local attitudes toward the offshore islands, biodiversity and birdlife.

Birding and bird tourism have increased in popularity and are providing an economic incentive for local residents to embrace the native wildlife of their unique islands. Saint Lucia is adopting the floating classroom technique and hopes to achieve a similar positive impact on local attitudes. "We have learned that birds bring people from all walks of life together, and that they bring people and nature together, all in a positive way," the Environmental Awareness Group's Lawrence says. "The Neotropical Migratory Bird Conservation Act helped us to foster these unions, both for the good of the people, and for the birds." □

AMBER DUNCAN, Volunteer, Migratory Birds, Headquarters

? MORE INFORMATION

An international grant program of the Service, the Neotropical Migratory Bird Conservation Act funds projects that promote the long-term conservation of the 386 bird species that breed in the United States and Canada and spend the winters in the southern part of the Western Hemisphere. Learn more at <fws.gov/birdhabitat/grants/NMBCA>.

Rat Island No Longer

"When I first landed on what was Rat Island in 2007, it was an eerily silent place. A typical Aleutian island is teeming with wildlife, swirling with noisy, pungent birds. Not this place. It was crisscrossed with rat trails, littered with rat scat, scavenged bird bones, it even smelled…wrong," reports Stacey Buckelew, an Island Conservation biologist. Buckelew first visited the island, in Alaska, to help document centuries of damage to native birds and plant species from introduced invasive Norway rats.

Fast forward to today—five years after the successful removal of the rats by the Service, The Nature Conservancy and Island Conservation.

"The island is hardly recognizable among the cacophony of birds calling everywhere; it's alive with bird fledglings—teals, eiders, wrens, sparrows, eagles, peregrine falcons, gulls, sandpipers. The island is transforming," says Buckelew, who is helping document early stages of an extraordinary recovery on the now renamed Hawadax Island.

For the first time ever, breeding tufted puffins have been documented on the island in the Alaska Maritime National Wildlife Refuge. Species extirpated because of the rats, such as Leach's storm-petrels and fork-tailed storm-petrels, have returned.

NICK HOLLANDS

Tufted Puffins are winging their way back to Hawadax.

Ground-nesting and shorebird numbers are increasing, and song sparrows, thought to be near extirpated by rats, and snow buntings, also decimated by rats, are rebounding.

"The return of bird life to Hawadax Island is an inspiring example of what we can accomplish when we work together to fix a longstanding problem. It's a win for people, and it's a win for nature," said Randy Hagenstein, Alaska state director for The Nature Conservancy.

Norway rats were spilled onto the island's rocky shores in a 1780s shipwreck. Since then the rats had decimated native bird species by eating eggs, chicks and adult birds and by ravaging habitat. In 2008, after much study, project partners successfully removed the rats using rodenticide bait.

The project has also helped to restore another important native presence. In 2012, the Aleutian Pribilof Islands Association, representing the Unangan (Aleut) community, championed and officially restored the island's original Unangan name. Hawadax translates to "those two over there" (an accurate description of the two knolls dominating the island's topography). While the island is currently uninhabited, it was used by the Unangan people for millennia.

"What a joy it was to visit Hawadax Island this summer," said Alaska Maritime National Wildlife Manager Steve Delehanty. "There were birds everywhere. There is no more valuable action we can take on a national wildlife refuge than making it once again a haven for wildlife." □

Transmitting Hope: Using Social Media to Protect Endangered Species

As Service biologists and their partners work hard on a captive-breeding project for the endangered Wyoming toad, one of their scientific efforts has brought the little-known amphibian into the global spotlight, thanks to the smart placement of a creative photo and a little bit of luck.

In August, just a few months after the Service began sharing photos via Instagram, Ryan Moehring, the Service's Web and social media coordinator for the Mountain-Prairie Region, posted an image of a Wyoming toad wearing a backpack outfitted with a radio transmitter. Service biologists have placed these transmitters on select toads to monitor their movements inside Mortenson Lake National Wildlife Refuge in Wyoming.

The post was successful by the account's standards at that time, but no one could have predicted what would happen next.

The Department of the Interior's Instagram account was a "featured account" at the time of the post, meaning its profile was promoted to all 100 million Instagram users. Tim Fullerton, DOI's director of digital strategy, featured the Service's post about the Wyoming toad, and within 24 hours, the Service gained 6,000 followers.

The overnight addition of 6,000 followers is a significant jump on any social media platform. Jessica Sellers, a graduate of Humboldt State University who works on the toad project, was amazed by the explosion of interest in her work that the photograph generated.

"My Facebook account was bombarded by friends interested in the toad sporting a backpack. This picture spread like wildfire before I even knew what the original post was about. It generated good-humored interest in the project I am working on."

This was not the first time that a social media post from the Mountain-Prairie Region became highly visible. In late March, the region published posts on its Facebook and Flickr accounts showing two mountain lion cubs cornered by a group of five coyotes at National Elk Refuge in Wyoming. In a week's time, the post received more than 3 million views across the Service's social media network. The story also featured prominently on the home page of yahoo.com and other major news outlets, reaching untold millions more there.

These social media success stories show that digital communications have become one of the Service's most effective tools and their growing network shows no signs of slowing down.

"It's wonderful watching millions of people using technology to connect with wildlife," Moehring says. "For me, these viral posts reaffirm the power of digital communications. What other outreach tool offers that kind of explosive growth potential and reach?"

Traditionally, the government has not been known to be on the cutting edge of technological innovation, with NASA and the White House perhaps being the most notable exceptions. DOI and the Service hope their burgeoning digital communications programs can carry them to similar waters.

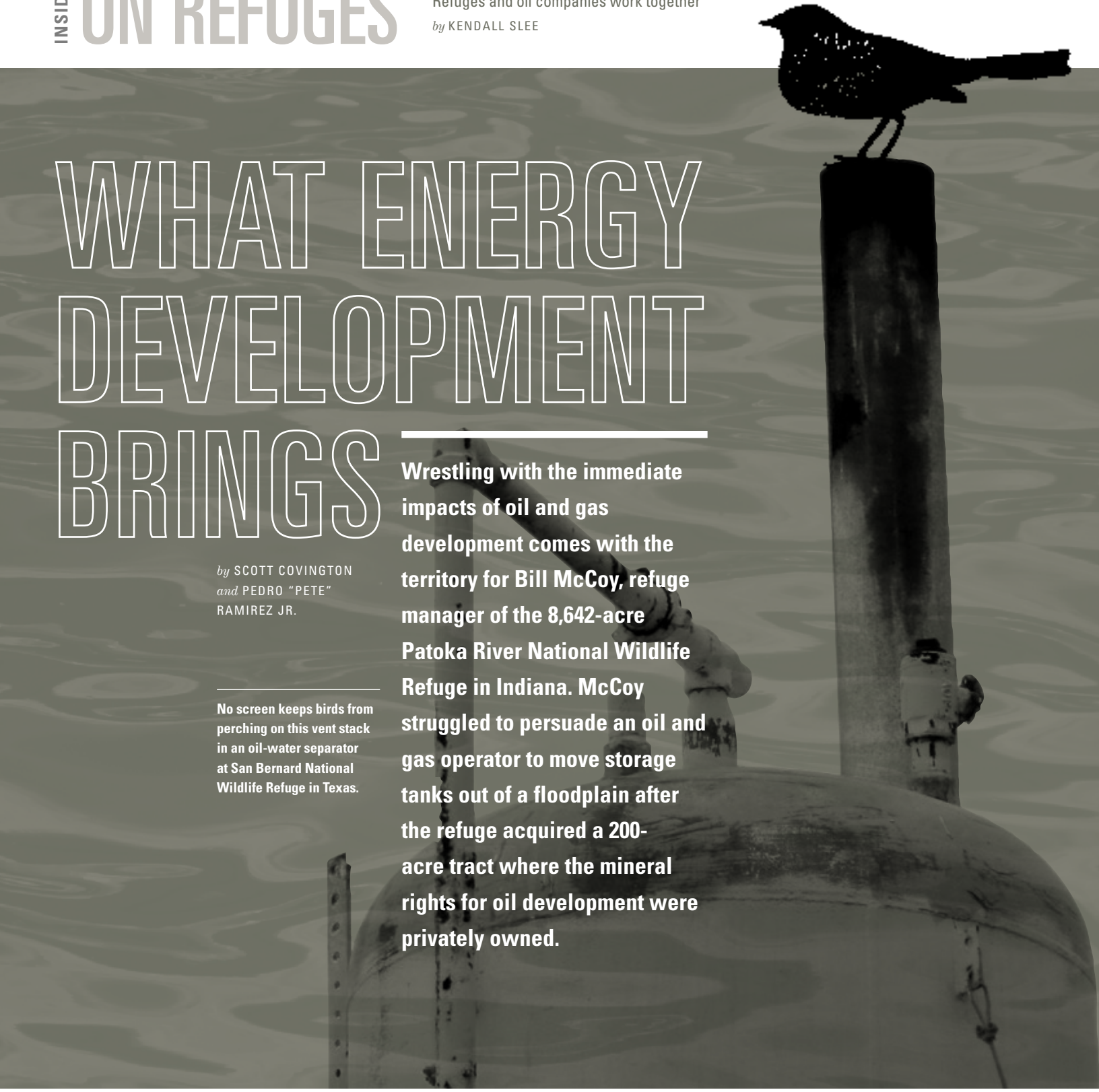
The case of the Wyoming toad photograph is a textbook example of the power of social media and underscores the need for the Service to continue pursuing its digital communications goals. With the simple act of publishing a creative photograph to Instagram, the Service provided an endangered species with a kind of protection it might not otherwise have received: public support. □

The backpacking toad

BRENDAN DAVIDSON,
Communications Contributor,
Mountain-Prairie Region

INSIDE SPOTLIGHT

OIL & GAS ON REFUGES



WHAT ENERGY DEVELOPMENT BRINGS

by SCOTT COVINGTON *and* PEDRO "PETE" RAMIREZ JR.

Wrestling with the immediate impacts of oil and gas development comes with the territory for Bill McCoy, refuge manager of the 8,642-acre Patoka River National Wildlife Refuge in Indiana. McCoy struggled to persuade an oil and gas operator to move storage tanks out of a floodplain after the refuge acquired a 200-acre tract where the mineral rights for oil development were privately owned.

No screen keeps birds from perching on this vent stack in an oil-water separator at San Bernard National Wildlife Refuge in Texas.

In December 2011, floodwaters inundated the area and overran oil storage tanks that the oil company had placed within the floodplain. Flood debris caused a tank valve to remain open and release of up to 15 barrels of crude oil into the floodwaters (1 barrel of oil equals 42 gallons). The floodwaters deposited oil in large patches over the ground, on trees and onto a neighboring property that was part of a permanent wetland reserve easement. The oil company eventually cleaned up the larger patches of oil.

McCoy talked to the oil operator about potential impacts: releases of oil and oilfield brine from the tanks, separators and pipelines or flowlines; storage tank emissions; and chronic oil spills. McCoy's efforts paid off when the operator willingly moved a proposed well site to a farm field and drilled the well at that location. Unfortunately, the oil operator kept the oil storage tanks in the same vulnerable location. McCoy says he "can only hope that the tanks don't leak during the next flood or the operator raises the tanks above flood level."

How can an oil and gas well be punched into the middle of the Patoka River Refuge, let alone into a floodplain? It's all about "split estate," in which the minerals underground are owned by an entity other than the surface owner. In the case of Patoka River Refuge, like many other wildlife refuges, the privately owned mineral rights were retained when the surface rights—that is, the land itself—were sold. The Service cannot deny access to subsurface minerals; that would be considered a "taking of private property," in this case, nonfederal mineral rights.

McCoy is not alone in dealing with split estate and oil and gas issues. Of the 562 national wildlife refuges and 38 wetland management districts, 107 have oil and gas wells and/or pipelines. The vast majority of these wells and pipelines are for exploration, production and transport of nonfederally owned oil and gas.

The problems faced at Patoka River Refuge aren't the only ones that refuge managers and the Service contend with. The Service cannot infringe on the rights of the mineral owner. It can, and does, require that private mineral owners conduct operations in a way that minimizes environmental damage as much as practicable. However, without revising the existing oil and gas regulations, McCoy and other refuge managers have few specific regulatory tools they can apply beyond monitoring, advising and working within the existing regulatory framework, which vary by location. (*See State Regulations: Effective at Protecting Refuges? p. 19*)

And there are a host of issues at each stage of oil and gas exploration and production.

During any phase of oil and gas exploration and production the following problems can occur: loss of public use of refuge areas with oil and gas activities or facilities; chemical and oil spills and leaks; noise, dust, exhaust fumes and human activity caused by equipment and crews disturb and displace wildlife; puddles of leaked oil can trap small mammals and songbirds; and the increase in vehicular traffic usually results in wildlife mortality, especially when transporting the large amounts of water needed for hydraulic fracturing.

USFWS

A visitor takes in Patoka River National Wildlife Refuge in Indiana.

Exploration for oil and gas brings potential problems. Seismic surveys are one of the most common methods used to determine the potential for oil and gas in the underlying geologic formations. Often, air guns, explosives or vibroseis vehicles (specially designed heavy trucks that "thump" the ground) are used in seismic surveys. Air guns and explosives can harm aquatic organisms such as fish and marine mammals. Vibroseis vehicles, seismic drilling rigs and other heavy equipment can crush vegetation, cause soil compaction and erosion, and change the flow of water in wetlands. Seismic surveys in areas with shrubs and trees require clearing trails for the drilling rigs, vibroseis vehicles and other vehicles, resulting in extensive habitat loss or fragmentation.

Drilling a well typically requires construction of an access road and a well pad (two to six acres or more of habitat is removed) to accommodate the drilling rig and associated equipment. Noise and activity from the drilling rig, support vehicles and drilling crews disturb and displace wildlife. Emissions of various air pollutants including nitrogen oxides, volatile organic compounds, carbon monoxide, sulfur dioxide and particulates from the drilling rig engines, gas flares, and support vehicles can degrade air quality. Nitrogen oxides and volatile organic compounds are primary precursors to ozone formation, which can have damaging effects on vegetation and the health of wildlife and humans. Fluid waste from drilling is often disposed of in earthen pits (reserve pits), which can contaminate ground and surface water. Birds and other wildlife attracted to pits can also become trapped in the oily waste and die.

Horizontal wells drilled in shale oil or shale gas formations typically require fracturing the oil- or gas-bearing rock by injecting large volumes of fluids (water, sand and chemicals) under very high pressure into the well. Hydraulic fracking operations use 2 million to 5 million gallons of water per well, along with chemicals and acids, which are injected to stimulate production. The use of these large quantities of water for fracking can deplete water sources needed by refuges. After the well is fracked, 10 to 70 percent of the fracking fluid (flowback) flows out of the well and is temporarily stored in either steel tanks or a reserve pit.

Once wells come online and begin producing, oil operators must regularly inspect the sites to detect releases of oil and oilfield brine from the wellhead and pipelines or flowlines. Spilled oil from leaking wellheads or pipelines contaminates soil and can be transported to nearby streams or wetlands by rainfall, runoff or snowmelt. Equipment to pump the oil out of the well can be noisy and disturb wildlife.

At Patoka, McCoy continues to improve communication and provide recommendations to the oil and gas operator on the refuge. Although damage has already occurred, he includes other federal and state agencies in discussions to provide additional support and recommendations on how to minimize further impacts to refuge resources. With additional knowledge about the drainage patterns, upland habitats and drilling capabilities, he encourages the use of best management practices in this oilfield to protect the wildlife and other resources for which the refuge was established. □

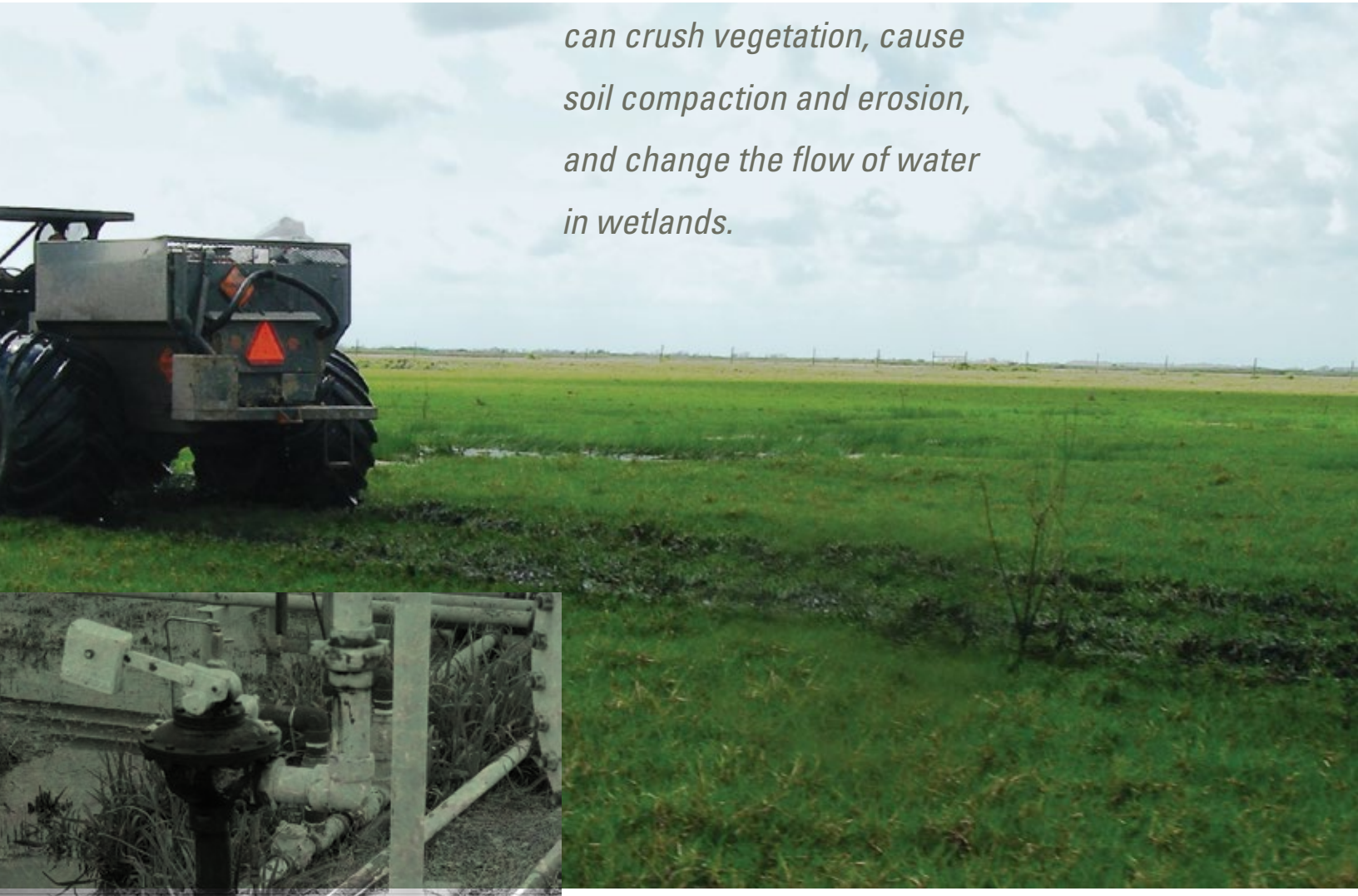
SCOTT COVINGTON, Refuge System Energy Program, Headquarters, and PEDRO "PETE" RAMIREZ JR., Refuge System Environmental Contaminants, Headquarters

MONIQUE SLAUGHTER/USFWS

PEDRO RAMIREZ JR./USFWS

A seismic exploration vehicle leaves ruts on the marsh at McFaddin National Wildlife Refuge in Texas.

Vibroseis vehicles, seismic drilling rigs and other heavy equipment can crush vegetation, cause soil compaction and erosion, and change the flow of water in wetlands.

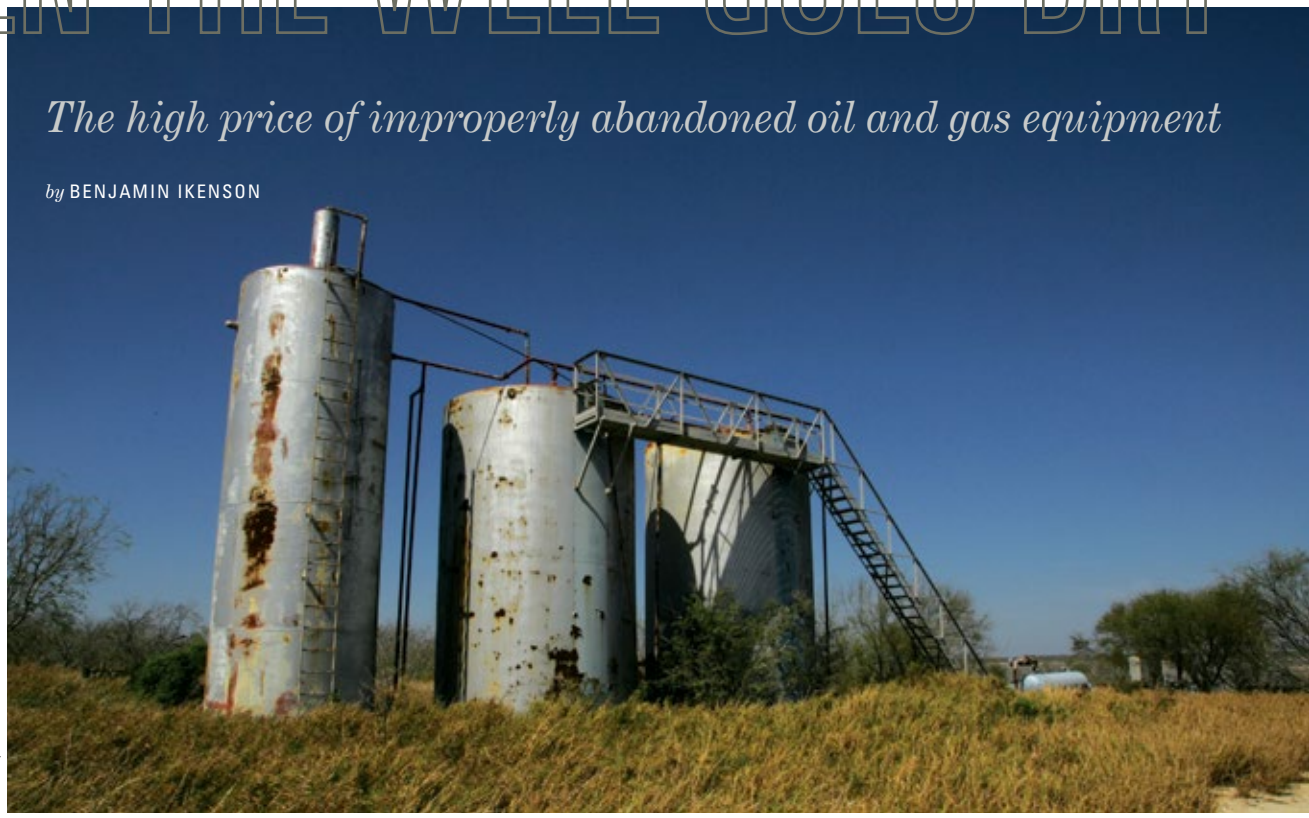


Flowlines cross a mudflat at San Bernard National Wildlife Refuge in Texas. Some flowlines are abandoned and corroded.

WHEN THE WELL GOES DRY

The high price of improperly abandoned oil and gas equipment

by BENJAMIN IKENSON



JD CORTEZ/USFWS

Left: These three wells drilled in the 1930s at Lower Rio Grande Valley National Wildlife Refuge in Texas were improperly abandoned in the 1990s and finally properly plugged and abandoned, and equipment removed, in 2010. **Right**: Oil leaks from an improperly abandoned oil and gas well site on Deep Forks National Wildlife Refuge in Oklahoma.

On the south Texas plains in the fall of 2007, a 28-year-old ranch hand was operating a tractor, moving dirt to thwart the path of a distant wildfire when the tractor hit an improperly abandoned natural-gas pipeline concealed in the brush and burst into flames. The man's hands, arms and face were severely burned. "I thought I was fixing to die," Bo Vavrusa told a Bloomberg News reporter.

To regulators and the oil and gas industry, a properly retired well is referred to as plugged and abandoned. But an improperly abandoned well means operators gave up and are never returning. Abandonment is also used to describe other equipment and infrastructure left behind without restoring the sites.

Bearing scars, Vavrusa survived. But the accident sheds light on an issue that leaves many kinds of scars. In addition to human safety, improperly abandoned oil and gas infrastructure represents a major environmental hazard on lands and waters, especially in the National Wildlife Refuge System. Even long after the business of extraction is finished, oil and gas remains an inherently dirty business. Improperly abandoned pipes and tanks fail and inadequately plugged wells leak, polluting soil and water. The challenges associated with them are both complex and costly.

For example, one of the most biologically diverse areas in the Refuge System, Lower Rio Grande Valley National Wildlife Refuge in Texas is an important wildlife corridor made up of more than 100 Service-owned tracts of land along the final 275-mile stretch of the famed river. On one of the tracts, three oil wells drilled in the 1930s—long before the refuge was established—were improperly abandoned when their last operator disappeared in the 1990s. The wells were located along a large saltwater lake frequented not only by the general public but by endangered piping plovers and least terns, as well as a host of other wintering shorebirds.

"The production infrastructure extended into the lake and we were very concerned it could contaminate the adjacent wetland, which is also important wintering habitat for piping plover," says Refuge Manager Bryan Winton. "Equipment was left at each location, including storage tanks and rusted pipelines containing chemicals and hydrocarbons. One well was already leaking and the concern was that the wells, if left unplugged and further neglected, would contaminate the entire lake."

The refuge issued numerous requests to the Texas State Railroad Commission—the state agency that

DARRIN UNRUH/USFWS

oversees and permits oil and gas activities—to properly plug and abandon the wells. Like their counterparts in other states, the agency charges fees to operators that are pooled and used for cleanup. "But cleanup costs typically exceed available funding," says Winton.

After extensive negotiation, the Railroad Commission properly plugged the wells, and removed equipment and pipelines. However, because of access issues, it wasn't until 2010 that the state finally accomplished the task at a cost of more than $1.2 million.

"The original well operator sells the wells, and ownership probably changes several times," says Winton. "As productivity declines, the owner sells off the facilities to another company since they cashed in on the most highly productive years of a well's life. They leave it up to another company to squeeze out the last drops of oil, passing on reclamation responsibilities to the next company. The new owners are often lower budget operators with few financial resources to upgrade facilities or clean up when they're done. They, in turn, sell to someone else. In the end, nobody has the resources to follow through with reclamation."

As Winton says, it can be very hard to hold operators accountable for the damage they leave behind. They often simply disappear, or can't afford the cost, choose the lesser expense of bankruptcy and walk away. Refuge staff can negotiate with state agencies, but that can take years and does not always yield results.

In east-central Oklahoma, the 9,600-acre Deep Fork National Wildlife Refuge is home to not only upland prairies, hardwood forests and oxbow lakes, but also hundreds of small, old stripper wells, scores of pump jacks and other surface equipment left behind by oil and gas operators.

"I never dreamed I'd be trying to track down old oil well operators as part of my job," says Refuge Manager Darren Unruh. "But we are concerned about what's going on underground. The old casings may be compromised and wells need to be plugged to protect groundwater, but the operators are mostly long gone and the Oklahoma Corporation Commission hasn't really been able to help."

And there are more than just a few inactive sites on refuges across the nation.

"Based on current data, the National Wildlife Refuge System has over 5,000 oil and gas wells—about 1,665 are active, the rest are in some state between inactivity and abandonment," says Pedro "Pete" Ramirez Jr., a Refuge System environmental contaminants biologist. "We've got our work cut out for us. We need updated status information on the other 3,000-plus wells. Relatively few have been properly plugged and abandoned, contaminants cleaned up, equipment and pipelines removed, and the site restored to natural conditions by the oil operators. The extent that we can find operators on the other wells will likely define how much of the cleanup costs will fall to taxpayers."

The cost and cleanup of improperly abandoned oil and gas infrastructure have been concerns of growing importance over the last decade. In 2003, the Government Accountability Office (GAO) issued a report that determined management and oversight of oil and gas activities on refuge lands was inadequate and inconsistent. The GAO pointed out that the Service needed to inventory oil and gas wells and infrastructure on refuge lands and develop a national tracking system to consistently address problems. The GAO also found refuge regulations ineffective at helping managers deal with oil and gas issues.

"Most improperly abandoned oilfield equipment pre-date refuge acquisition" says Ramirez. "The challenge now is identifying abandoned sites, getting equipment removed and the sites cleaned up."

Ramirez and his colleagues are compiling information on oil and gas activities across the Refuge System. They are preparing a report documenting the number and location of wells and pipelines across the country. The report will also inform future regulation efforts such as how to establish a consistent approach for permit conditions—and include an approval process and timeline for equipment removal before problems occur.

Also, Ramirez and fellow Service personnel are involved in training activities to better acquaint refuge staff with oil and gas industry practices and to better negotiate with operators. Meanwhile, Service managers and oil and gas specialists are working to educate oil and gas companies operating on refuge lands about conservation needs.

"Altogether, this is an enormously complex, costly and dangerous problem," says Ramirez. "But we are making decisive steps forward." □

BENJAMIN IKENSON is a freelance writer living in Albuquerque, New Mexico.

CONSERVATION COMPROMISES

Refuges work with oil and gas companies to find solutions

BY KENDALL SLEE | The thorn forests on Lower Rio Grande Valley National Wildlife Refuge in Texas provide the endangered ocelot with one of its last vestiges of habitat in the United States. Knowing that only an estimated 50 ocelots remain in the United States, refuge managers are concerned that oil- and gas-related pipelines, and roads transecting the forest give the ocelot's dominating competitors—coyotes and bobcats—inroads to one of the species' last footholds.

Egrets fly over an oil well at Hagerman National Wildlife Refuge in Texas.

The ocelot specializes in hunting in dense, almost impenetrable vegetation where larger predators have limited access. This wild feline—twice the size of a house cat—once ranged across Texas, southern Arizona and into Louisiana and Arkansas, but now its only U.S. presence is in the southern tip of Texas.

Lower Rio Grande Valley's thorn forest is transected by pipelines that are periodically cleared of vegetation, threatening to degrade part of the cat's fragile habitat.

As in many aspects of oil field management, the most economical practices to maintain oil and gas pipelines may be detrimental to wildlife.

Oil and gas operators traditionally use herbicides to clear vegetation over pipelines, creating a 10- to 30-foot-wide corridor that reduces the risk of line damage from plant roots and allows monitoring for leaks. Now, Lower Rio Grande Valley Refuge Manager Bryan Winton is reaching out to energy companies that operate on the refuge and beyond to encourage them to mow pipeline corridors. Killing native vegetation with herbicides encourages invasive plants to infiltrate the refuge. Herbicides can also degrade water quality as heavy rains can wash them into streams or wetlands.

Even if operators mow, clearing vegetation remains detrimental to the ocelot because it opens corridors for competing predators.

"There is no permanent solution for pipelines we inherited on refuge lands," Winton explains. "For safety purposes, companies will always have to maintain their lines." He encourages pipeline owners to minimize their footprint in the thorn forest. "If we can get a company with a 50-foot right of way to agree to maintain only 30 feet, then that is a big habitat savings," he says. The refuge requires new pipelines to be routed around high quality ocelot habitat to align with roads or other existing disturbances, even if it takes miles of additional pipeline.

Building Relationships

The complications of managing wildlife alongside oil and gas operations exist on many refuges, and could extend to yet more refuges as oil and gas extraction technologies evolve. While the Service owns and manages the land on most national wildlife refuges, in many areas the mineral rights—the right to extract the below-surface oil, gas and minerals—are owned by private parties, says Mary Maddux, Service regional oil and gas specialist at Hagerman National Wildlife Refuge in Texas. In fact, on a number of refuges in Texas and Louisiana, oil and gas drilling was underway when the refuges were established.

> *"If you've spent decades trying to improve a habitat and an oil and gas operation comes in to drill, they can annihilate that area."*
>
> —MARY MADDUX, Service oil and gas specialist

What is particularly difficult, Maddux says, is that state laws give mineral rights legal priority over surface rights. That gives mineral owners the right to construct roads and well pads, to drill wells, and to install pipelines and storage tanks to access those minerals. That can leave refuge managers , who have few specific regulatory protections, in a climate of stark conservation compromises. "If you've spent decades trying to improve a habitat and an oil and gas operation comes in to drill, they can annihilate that area," Maddux says. "It makes it hard to plan your conservation objectives, because you don't know where they're going to develop oil and gas in the future."

Experiences vary by state, refuge and company. States vary on how they regulate oil and gas as they do in the strength of their environmental protections.

Above: Only an estimated 50 ocelots remain in the United States, and now it is being further threatened by the removal of its habitat to clear space for pipelines.

Right: Discarded pipes sit on a well pad at San Bernard National Wildlife Refuge in Texas.

Additionally, it is easier to start on the right environmental footing with an oil and gas company rather than fix situations decades later. Moreover, oil and gas companies also operate with varying degrees of environmental consciousness.

Billy Leonard, oil and gas specialist for Southwest Louisiana Refuge Complex, says that the complex has been able to work with mineral owners on the specifics of how they access oil and gas. "In some cases we have had them drill off-refuge to get to minerals that are under the refuge. In one case, a producer built his entire production facility off-refuge," he says.

Furthermore, the large company that owns most of the mineral rights on the refuge has spent time, funding and effort in restoration, Leonard notes. In 2013, for example, the company worked with refuge management to create a 20-acre wetland on a former road and drilling area no longer in use; the company routinely restores and improves refuge roads damaged by heavy industrial equipment.

Sabine National Wildlife Refuge, part of the complex, is designated a Globally Important Bird Area due to the numerous wading, water and marsh birds that use it throughout the year—some alongside oil and gas wells. Leonard encourages open lines of communication about spills, drips, leaks and equipment malfunctions because fast action can save habitat and mean lower cleanup and restoration costs for operators.

"There are mistakes made and mechanical breakdowns. I advise them on what needs to be done," he says. "If soil has been contaminated by a leak, we have the operator replace contaminated soil before allowing them to continue their work."

When oil spilled from a tank onto marsh grasses during the 2005 Hurricane Ike storm surge, Leonard advised the responsible party to promptly mow and remove all the affected vegetation. The company followed his advice, helping to prevent marsh birds from moving through the vegetation, getting oil on their plumage and ingesting it.

Such an approach is the result of years of building trust by working with oil and gas companies to address problems, and in a state with reasonable regulations.

Finding a balance

In some oil fields, brine or saltwater is produced along with oil and must be managed and disposed of by the oil operator. Brine spills can be more lethal to refuge habitat than an oil spill. Brine causes long-term damage to soil and kills vegetation. On Hagerman Refuge, a brine spill killed a half-acre of woodlands including some 100-year-old trees that were important to migrating songbirds and other wildlife. The responsible party has agreed to replant and maintain pecan and oak trees in a new location, although the refuge did not regain the 100 years it takes to replace the habitat.

Hagerman Refuge has tightly restricted operator access to drilling platforms that jut into Lake Texoma, where endangered interior least terns nest. Volunteers and oil and gas operators help monitor the nests, and noisy and disruptive activities on the platforms are delayed until after September to minimize disruption to the birds.

Because many migratory birds overwinter on Sabine Refuge, Leonard advises oil and gas operators to wait until after March to undertake drilling and other activities that can be particularly loud and involve heavy equipment.

Remedies

The Service has made progress on a number of fronts to better address the complicated challenges of managing oil and gas on refuges. These include:

- Hired several regional and national oil and gas specialists to give technical assistance to national wildlife refuge field staff and help develop national guidance.
- Developing a national database of oil and gas wells and other structures that are now on refuges.
- Trained 162 refuge and supporting staff on oil and gas operations, Service policy and ways to improve management practices since 2005.
- Issued a Service handbook on management of oil and gas on refuges in 2010.

"Much more needs to be done to address the challenge," says Kim Trust, Refuge System chief for Wildlife Resources. "The Refuge System is examining the environmental effects of oil and gas activity on refuge wildlife and habitat, reviewing state oil and gas regulations, and seeking to improve the Service's regulations for management of oil and gas on refuges." □

KENDALL SLEE is a freelance writer near Syracuse, New York

PEDRO RAMIREZ JR./USFWS

Spill Has a Happy Ending

by JOHN PANCAKE

On April 6, 2010, a petroleum company work barge anchoring itself for the night punched through a 10-inch oil pipeline. An estimated 400 barrels of oil gushed over the soft Louisiana mud of Delta National Wildlife Refuge before the leak was contained.

Delta Refuge is a watery expanse of 49,000 acres where the rich waters of the Mississippi River Delta meet the warm currents of the Gulf of Mexico. Its vast marshes shelter hundreds of thousands of migratory and resident birds—ducks and snow geese as well as coots, moorhens, wading birds and shorebirds. The shallows teem with game fish, crustaceans, alligators and fur-bearing mammals. It also has roughly 450 oil wells, of which 40 are active, and untold miles of crisscrossing production and flowlines.

Chevron Pipeline Co., which then owned the pipeline—took immediate, appropriate actions to clean up the oil from refuge marshes. But the spill also offered Delta Refuge the opportunity to discuss marsh restoration with Texas Petroleum Investment Co. (TPIC), the largest oil and gas operator on the refuge. TPIC was responsible for multiple small spills in other parts of the refuge.

Ultimately, a $100,000 grant from the National Fish and Wildlife Foundation (NFWF) to the Friends of Louisiana Wildlife Refuges was combined with other funding—including remediation obligations from both Chevron and TPIC—to create a cost-effective $820,000 marsh restoration project. Both Chevron and TPIC worked with refuge management to address long-term mitigation for the loss of marsh use.

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Refuge Manager Neil Lalonde is pictured in October on a vegetated terrace of Delta National Wildlife Refuge in Louisiana.

Barret Fortier, wildlife biologist and energy specialist for the Service's Southeast Region, notes that instead of paying the Service mitigation money to cover damages from the spills, the oil companies did much of the work, including hiring the contractors. Volunteers and members of the Friends group added their muscle as well. Working with all entities gave the refuge "much more bang for our buck and gave us a functioning project that has the potential to create new marsh for years," according to Fortier.

Contractors dug a channel six feet deep, 100 feet wide and 800 feet long to divert water into a shallow open area of marsh. They constructed 12 terraces to slow the flow of water, causing sediment to fall out and creating new wetlands. Volunteers planted terraces with smooth cordgrass, a native marsh species.

Over time, the area will become fertile mudflats and marshes, or "mini-deltas."

Jim Schmidt, a retired hospital administrator who is past president of the Friends group and presently the group's treasurer, says collaborating with the oil companies made the work a lot easier. Schmidt, who lives in nearby Slidell, Louisiana, was closely involved in getting the $100,000 grant from NFWF for some construction and purchasing cordgrass plugs. He's happy with the result.

"We did the planting in June, and I can't believe it but the grass is now over my head out there," he says. "It's going to help us build some super habitat."

Refuge Manager Neil Lalonde, who provided $40,000 in refuge funds, adds, "Working with and monitoring oil and gas operations is time consuming, but the operators generally are more proactive than in past years in doing the right thing environmentally." □

JOHN PANCAKE is a freelance writer who lives in Goshen Pass, Virginia.

USFWS

State Regulations: Effective at Protecting Refuges?

by SCOTT COVINGTON *and* PEDRO "PETE" RAMIREZ JR.

Mark Cupit, refuge law enforcement officer at St. Catherine Creek National Wildlife Refuge in Mississippi, has investigated numerous oilfield leaks and spills during his career. Consider just one example.

In 2009 he found a poorly plugged well leaking oil onto the refuge. After consulting refuge and state records, he found no company liable because the operator had long ago improperly abandoned the site. This orphaned well cost approximately $260,000 to "plug and abandon" (where a well is sealed and protected from future leakage), and clean up the site. But in Mississippi, oil and gas companies are required to post only $10,000 per well as bond, or $100,000 for a blanket bond that covers all operations by a single operator. In this case, the American taxpayer paid the entire cost of spill cleanup and re-plugging the well.

In general, state regulations are designed primarily to protect groundwater, surface water, human health and safety while also encouraging oil and gas production, minimizing waste of oil and gas resources and maximizing revenues from production. State oil and gas regulations typically do not provide adequate protection for wildlife and its habitat. Of the 43 states that have oil and gas regulations, all have requirements for properly abandoned wells, but no state has adequate bonding requirements to properly plug and abandon a well, remove the equipment and fully reclaim the site.

You can see roseate spoonbills at St. Catherine Creek National Wildlife Refuge in Mississippi, which has been designated as an Important Birding Area by the National Audubon Society.

Regulations vary considerably from state to state, leaving the oil and gas industry with no consistency for operations on national wildlife refuges. For example, some state regulations address impacts or damage to surface land owners; some do not. Some afford stronger protection to sensitive areas such as wildlife management areas; others do not. Some states address the use and closure of open pits; other states do not. Bond requirements, oil spill cleanup and reporting and fines differ considerably, as does the frequency of inspections of oil and gas exploration and production sites. And states may not have enough inspectors to ensure companies are meeting state standards.

In 2011, the Texas Railroad Commission (which oversees oil and gas operations) reported 153 inspectors to monitor 263,233 producing oil and gas wells. Even to visit each well once a year would require inspectors to visit seven wells a day, which is hardly possible with travel times, not counting vacation, holidays, drilling operations, injection wells or return visits to follow-up on violations. A year between visits is thin to ensure compliance with state standards, and other states have fewer inspectors per well than Texas.

The Service's legal mandates and regulatory requirements differ considerably from the states' missions and responsibilities. The Refuge System's mission is to administer a national network of lands and waters for the conservation and management of wildlife and plant resources and their habitats. So, how can the Service meet its congressionally mandated mission while addressing oil and gas issues that state regulations and inspections do not?

Spilled oil at a production facility at Lake Ophelia National Wildlife Refuge in Louisiana.

"It would help if refuge staff could enforce state regulation on oil and gas operations on refuges while ensuring compliance with current federal regulations," according to the Refuge System's Chief of Policy Paul Steblein. As it stands now, Service staff can do little but monitor operations, offer advice and talk with state regulators. But as Steblein says, "state regulations by themselves are not sufficient to protect the public's investment and enjoyment of wildlife and wetlands on refuges."

The Service is developing a number of tools, including regulations, to improve its management across state lines and guarantee the American people that wildlife comes first, even as those who own the oil and gas surface rights on refuges continue to provide needed energy resources for the nation. □

SCOTT COVINGTON, Refuge System Energy Program, Headquarters, and PEDRO "PETE" RAMIREZ JR., Refuge System Environmental Contaminants, Headquarters

WHY I GOT INTO CONSERVATION

Eight regional directors weigh in

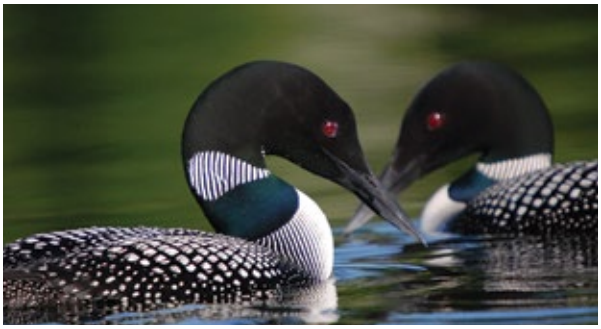
Much is made of the growing disconnect between people and the outdoors. One way the Service is trying to tackle that problem by bringing nature to urban areas (See p. 34). The Service, like many conservation organizations, is putting great emphasis on attracting the next generation of scientists, communicators, economists, technicians and anyone passionate about wild things and wild places. So we asked some of this current generation what got them into conservation.

ROBYN THORSON

PACIFIC REGION

"Girl Scouts. Really. The summer before 9th grade I accompanied a neighbor to Scout camp and went backpacking for the first time—50 miles! I was immediately hooked on backcountry camping, outdoor skills (knots and lashing, anyone?) and understanding our natural world. This changed the course of my life: At a time (the '60s) when careers and opportunities for girls seemed narrow, I found an activity and an organization with challenging adventures, high purpose and strong friendships. And this was BEFORE John Denver made *Rocky Mountain High* a national mantra! Scouting (which I bought into with the passion of the newly converted) emphasized nature and the environment, and also instilled ethics and values—I am certain my interest in public service comes from that."

She adds that "good fortune, good role models and good parents" got her to where she is today. □



DR. BENJAMIN TUGGLE

SOUTHWEST REGION

"My father was in the military when I was growing up, so we lived in places all over the world. But some of my fondest memories, when we were state-side, were spending long summer days on my grandmother's farm in rural Georgia. After finishing my chores, I can remember the joy of spending the rest of the day being outside, making wonderful discoveries in the fields and streams on and adjacent to our farm; and the freedom I felt. How you could almost see the whole world from the right branch in the top of a tree, how there was a certain tranquility about fishing whether you caught something or not, and how animals and all living things have a place, a value and a purpose in the world. Those experiences taught me to value the natural world and gave me a curiosity of nature that I carry with me to this day."

"Stewardship of land and all living things, along with hard work, were very strong values for my grandparents and they did their best to instill those values in me. I didn't realize it at the time, but through those experiences and their teachings, they were establishing my conservation foundation. Years later those values and lessons would resurface when I decided to pursue my undergraduate, master's and doctorate degrees in biological sciences. I've never regretted that choice, and I still love every facet of being in the outdoors. I started my Fish and Wildlife Service career in 1979 at the National Wildlife Health Research Center in Madison, Wisconsin, working in wildlife disease biology. The Service is the only agency I have ever worked for and as I've moved through my career, I have been and remain continually honored and grateful to be able to work for an agency that shares my conservation values, and allows me to share those values in service to the American people." □

TOM MELIUS

MIDWEST REGION

"With nearly four decades of conservation work on the books since my 1975 professional start, I can vividly recall gaining interest in conservation as a youngster growing up on a farm in South Dakota. That's when I first enjoyed the wonders of pheasants, foxes and the wide variety of birds and other wildlife that graced our fields. I also fondly recall, as a young boy, taking pheasant eggs that were left in the alfalfa field after mowing and putting them in chicken nests to hatch and then releasing them. Wildlife always caught my eye and fascination growing up. Those experiences fueled my earliest interests in later pursuing a bachelor's degree in wildlife biology and a master's degree in fish and wildlife science from South Dakota State University." □

CINDY DOHNER

SOUTHEAST REGION

Cindy Dohner fell in love with the outdoors while fishing Pennsylvania's Susquehanna River with her dad, and tagging along on his deer hunting trips. Her first job—unpaid—was cleaning out bird boxes on state-owned land. As a teenager, she saw a "whole new world" on her first scuba diving trip in the Florida Keys. She grew up in the era of declining eagle and pelican populations due to DDT, rivers catching on fire and other well-known environmental disasters. Cindy wanted to help ensure the outdoor way of life she enjoyed would be available to her generation and the generations that follow.

Those experiences set her on a course that led to a bachelor's degree in marine biology and a master's degree in fisheries and a long career protecting fish and wildlife and the wild places upon which they depend. About 30 years ago, she made conservation her career. She has worked for a private environmental consulting firm and held positions in several state and federal organizations up and down the East Coast before joining the Service in 1993. "I thought I could make a difference. I hope I have. I know together we all are."

These days you can find her leading the Service's Southeast Region and more than 1,500 employees in a daily mission to make a difference. At any given moment you are likely to find her working with and supporting them on issues as big as the Gulf of Mexico restoration following the Deepwater Horizon oil spill and as small but no less consequential as the partnership work and proactive conservation that led to removing the Yadkin River goldenrod in North Carolina from the list of candidate species under the Endangered Species Act. "If you think about what we get to do, it's pretty special."

WENDI WEBER

NORTHEAST REGION

Wendi Weber was a pre-med major at the University of Rhode Island when an inspiring professor introduced her to nesting sea turtles on Cumberland Island in Georgia. "I fell in love. I went back to school and changed my major to zoology. The rest is history," she says.

Before entering graduate school at the University of Georgia, Weber studied sturgeon as a fisheries biologist for that state's department of natural resources. Later, master's degree in hand, she saw a Service job announcement for a position working on the illegal trade of sturgeon and caviar. "I was intrigued to combine my knowledge of the species with the chance to work with CITES, the ESA, and enforcement. It was the best career move I ever made."

Weber has been Regional Director for the Northeast's 13 states since 2011. She was the region's Deputy Regional Director for several years before that, and previously held leadership positions in the Midwest and Pacific regions. Before joining the Service in 1998, she worked for the states of Florida and Georgia as a field biologist.

NOREEN WALSH

MOUNTAIN-PRAIRIE REGION

Beginning in elementary school, Noreen Walsh (above, left) knew she wanted to pursue a career in wildlife conservation. Having parents who let her roam outdoors, visiting Seney National Wildlife Refuge in Michigan each summer and her experiences with Girl Scout adventures all sparked an interest that led to a major in wildlife biology as a natural choice for Noreen. Noreen's first job out of graduate school was with the Service. Now, 23 years into her career, there is nowhere she would rather be.

"I've been blessed to have participated in the work of the Service across our country: from my first job with caribou on the coastal plain of the Arctic National Wildlife Refuge, to Florida springs where manatees congregate, to the 'High Plains' where lesser prairie-chickens still dance on the leks every spring. If our role is to be stewards of the planet and ensure that those who come after us have wild places and wild things to enjoy, then I'd rather fulfill that role with the Service than anywhere else."

GEOFF HASKETT

ALASKA REGION

Geoff Haskett began his 36-year career with the Service in 1978 as a Realty Specialist in the Northwest Region. "I read *Silent Spring* when I was a junior in high school and was inspired to pursue a career in conservation." Geoff has led conservation efforts across the country in his positions as Assistant Regional Director of Refuges and Wildlife in the Southeast Region, Chief of the National Wildlife Refuge System in Washington, DC, and in his current role as Regional Director for the Alaska Region. Most recently, Geoff was appointed by the President as the Commissioner to the U.S.-Russia Polar Bear Commission (p. 39). "I feel privileged to have the opportunity to represent the United States and work nationally and internationally on polar bear and other conservation issues."

WHAT'S YOUR STORY?

Have a good story about why you are helping to "conserve the nature of America"? We'll print the best. Email matthew_trott@fws.gov.

REN LOHOEFENER

PACIFIC SOUTHWEST REGION

Pacific Southwest Regional Director Ren Lohoefener grew up in a farming and ranching family in the northwest corner of Kansas. For Lohoefener, watching and learning about wildlife and wildlife habitat was part of his everyday life. As a child, he wrote letters to the local newspaper calling for change to what he saw as harmful farming practices and predator control, an action that, on occasion, made him one of the less popular members of the community. Pursuing a biology education was a natural result of his rural upbringing and land stewardship principles.

Lohoefener joined the Service in 1989 after working for six years as an ecologist for the National Marine Fisheries Service. Since joining the Fish and Wildlife Service, Lohoefener has been a field biologist, the agency's Texas State Administrator, Assistant Regional Director for Ecological Services for the Southwest Region, Assistant Director for Ecological Services in Washington and Regional Director of both the Pacific and Pacific Southwest Regions.

Return of the Wetlands

South San Francisco Bay Celebrates a Decade of Restoration

"This is an enormously ambitious project requiring years of planning—and we're already seeing results on the ground," said Eric Mruz, manager of the Don Edwards San Francisco Bay National Wildlife Refuge, in January 2013 on the 10th anniversary of the historic land acquisition for the South Bay Salt Pond Restoration Project—an unprecedented effort, in the middle of a major urban center, to restore a landscape the size of Manhattan to a thriving wetland ecosystem.

In 2003, under the leadership of U.S. Sen. Dianne Feinstein, 15,100 acres of former commercial salt ponds were purchased or acquired through donation from Cargill Inc., the first step in a campaign to restore 100,000 acres of lost tidal wetlands around San Francisco Bay. Funds for the acquisition were provided by federal and state resource agencies and several private foundations, including the William and Flora Hewlett Foundation, the Gordon and Betty Moore Foundation, and the David and Lucile Packard Foundation.

Above: The endangered California clapper rail makes its home in the marshes of the restored former salt ponds.

About the 85 percent of tidal wetlands around the bay were lost to development over the last century and a half. These habitats serve as giant filters, removing toxic pollution and nutrient runoff that otherwise hurt the bay's fragile ecosystem. Historically, bay wetlands have also worked as natural sponges that protect communities from tidal flooding by absorbing and slowly releasing storm water. On the climate front, they capture and store atmospheric carbon that otherwise would contribute to global warming, and they serve as a natural buffer against sea level rise. The bay's wetlands also pulse each year with thousands of migrating and resident birds, fish and other species that rely on these habitats to forage, rest and raise their young.

The loss of the wetlands led to the dramatic decline in marsh-dependent species such as the salt marsh harvest mouse and the California clapper rail. The loss of tidal wetlands has also contributed to decreased water quality in the bay and increased the risk of flooding.

The project is "a rare opportunity to reverse some of the damage done to bay habitats over the last century," says John Bourgeois, executive project manager of the effort.

After the property was acquired, the Service, the California Department of Fish and Game (now the California Department of Fish and Wildlife) and the California

State Coastal Conservancy brought together a coalition of agency staff, scientists and members of the public to design a restoration plan. The restoration is being implemented in phases, stretching over the next several decades.

Phase one began in 2008 at the project's three salt pond complexes.

At the Ravenswood ponds, Phase one saw the restoration of 240 acres of enhanced pond habitat for nesting and resting shorebirds such as the western snowy plover. The restoration also increased public access, with a nearly three-quarter mile trail and two viewing platforms with interpretive displays.

Phase two, in the planning stage, envisions opening more ponds to tidal action so they can transition to marsh; improving the quality and diversity of managed ponds; and adding more recreational trails and interpretive displays.

Beyond habitat restoration and improved public access for wildlife-oriented recreation, the project aims to provide flood risk management. The development of fully restored wetlands that buffer against flooding will take decades. In the near term, levees that Cargill and its predecessors originally built for salt-making purposes will meet the need for flood protection. With a longer view, the project is partnering with the U.S. Army Corps of Engineers and local agencies to design a comprehensive flood control plan.

Scientific monitoring has shown an increase in native fish, plants and birds in several of the project's newly restored areas.

Despite its impressive record to date, the restoration project faces challenges. One of the most significant is the accelerating pace of sea level rise. While restored tidal marshes lessen the impact of rising waters and protect levees that shield inland areas from storm waves and tidal surges, the marshes need sediment to anchor them. Though there is sufficient sediment in the bay now, that may change with a rising sea level. Which means that the sooner salt ponds are restored to tidal marshes and wetlands the better chance they will have to establish themselves and grow as the sea level rises.

JUDY IRVING

KRIS BENTON

At the Alviso complex, more than 2,600 acres of ponds have been connected to the bay, creating tidal marsh for endangered species, as well as shallow water habitat for shorebirds, pelicans, cormorants and ducks. Another 240 acres of designed pond habitat include shallow waters and 16 nesting islands for migrating shorebirds such as avocets and stilts. And several miles of new trails were opened.

At Eden Landing, 630 acres of tidal habitat have been restored, along with 230 acres of pond habitat for a variety of bird species such as phalaropes and eared grebes. Public amenities include 3.8 miles of trails, an interpretive site with raised walkways and viewing platforms overlooking the remnants of the historic salt works, and a kayak launch.

One of the unique features of the restoration project is its use of adaptive management—the process of folding lessons learned on the ground in restoration activities into future management practices. That process is playing a critical role in determining which combination of habitats provides the best environment for resident and migrating species of birds, fish and other wildlife.

Each year, the project's scientists monitor and evaluate data on everything from mercury accumulation and sediment dynamics to the impact of trail use on birds. That information guides management decisions about future restoration work.

Above: Aerial photos of Island Pond A21 show the return of thriving marsh just two and a half years after being restored to tidal flow.

Representatives of the project are confident, however. "We believe the bay community will continue to make wetland restoration a priority," says Executive Manager Bourgeois. "And the agencies are committed to seeing the work implemented. The benefits are simply too great."

DOUG CORDELL, External Affairs, Pacific-Southwest Region

? MORE INFORMATION

One key to the success of the South Bay Salt Pond Restoration Project thus far has been the work of volunteers. Find out more at <www.southbayrestoration.org>.

A Holistic Approach to Conservation

Combining tribal wisdom and Western science to battle climate change in the Pacific Northwest

by AMANDA FORTIN

CREDIT: MEGHAN KEARNEY/USFWS

Wenix Red Elk of the Umatilla Tribe shows students how to make Tule mats at Salmon Camp hosted by Columbia River Inter-Tribal Fish Commission.

For centuries, indigenous peoples have understood the inextricable link between climate, landscapes, watersheds, and plants and animals. Tribes understand that the health of people, plants and wildlife is tied to the health of the environment. Indigenous knowledge—often referred to as Traditional Ecological Knowledge (TEK) — can offer important perspective to inform resource management in a time of rapid environmental change.

Increasingly, resource management agencies are looking at how natural resources respond to climate change. Using the scientific method, their tools typically favor analytical and reductionist approaches. This Western science methodology can miss the complex interactions between people and the broader ecosystem. When TEK is combined with Western science, managers can gain a more holistic understanding of the natural environment and create a more resilient future.

Traditional knowledge is sacred and often held in close confidence within tribal communities. To capitalize on the strengths of TEK and Western science, Pacific Northwest and Alaska Native tribes, First Nations in Canada, and agencies launched seven pilot projects throughout the Pacific Northwest's coastal temperate rainforest. These projects will support tribally led approaches to bring carefully considered traditional knowledge into climate change initiatives. Through these pilot projects, tribes, First Nations and agencies will work together to find culturally appropriate ways for traditional knowledge to help inform resource management decisions by indigenous and non-indigenous communities. The North Pacific Landscape Conservation Cooperative (NPLCC), the Service's Pacific Region and the Northwest Climate Science Center have announced $300,000 in grants to support the TEK pilot projects. These projects occur along the Pacific Coast throughout the range of the NPLCC, from southcentral Alaska to northern California—areas where climate change is already impacting natural and cultural resources.

These grants are intended to address a wide range of climate-related challenges. They will examine the potential risks of climate change on cultural resources and develop dynamic management options at a landscape scale. From the local changes of plant and animal species to the broader effects of changing ocean conditions on coastal communities, these projects will demonstrate how TEK and Western science inform decision makers as they grapple with understanding and preparing for the impacts of climate change.

"We want to create a unified starting point," says Dennis Nickerson, environmental planner for the Organized Village of Kasaan in Alaska. "We want state and federal agencies to collaborate with tribes, and this funding from the NPLCC and Fish and Wildlife Service

allows us all to work together and protect resources for our grandchildren."

This collaboration among tribal, state and federal entities grows increasingly important as both Western science and indigenous knowledge point to a rapidly changing climate and diminishing resources. NASA tells us 2012 was the warmest year on record for the United States and the ninth warmest year for the planet. Tribal oral tradition tells us that glaciers have melted and shorelines have changed. These conclusions were reached by different methods but their message is the same—the climate is changing and all living things must learn to adapt.

Learning to adapt often requires a radical shift in thinking. "Scientific research and tribal elders both suggest the presence of glaciers here in Bella Bella [British Columbia] and the presence of a vibrant maritime culture," says Jenifer Carpenter, culture and resource manager for Heiltsuk Nation. "People's existence was tied to getting around in small boats to gather important resources to sustain us. Now it is not that way...we talk of marine adaptation as if the water will adapt to us and I think it is the other way around. We must understand and plan for changing conditions."

The foundation for this kind of change is knowledge. The TEK grants strive to find ways for indigenous knowledge to inform the adaptation strategies that tribal and non-tribal natural resource managers are beginning to develop. "I am hoping the TEK study will let us sit down with elders and find out what it used to be like—the traditional ways of supporting indigenous people in the region," says Greg Collins, cultural resources manager and archaeologist for California State Parks. "We need to understand how climate-related changes like shifting PH levels in our oceans will affect resources important to native subsistence, cultures and traditions." Collins isn't alone on his quest for understanding and he is excited about the chance to examine modern problems with indigenous knowledge.

The perspective offered by TEK, according to Ron Reed, cultural biologist for the Karuk Tribe of northern California, is invaluable in its own right. "Our

MEGHAN KEARNEY/USFWS

Hands-on learning helps prepare the next generation at Salmon Camp.

ancestors had their own paradigm for managing cultural resources that they practiced for generations, and this offers us a wealth of knowledge on which to draw." When paired with the research of scientists and academics, Reed explains, "a more holistic paradigm is created, and we can break down barriers to understanding and manage our natural resources more effectively in the face of our shifting environments."

Wise stewardship of natural resources is something the Service strives for. In a world in which climate change has become what Stephen Zylstra, Assistant Regional Director for Science Applications for the Service's Pacific Region, calls "the new normal," he says that the agency is committed to "working with tribes to develop a more holistic approach to understanding environmental changes and assisting with adaptation to those changes in ways that benefit our environment and our communities."

TEK provides the opportunity for just that—a more universal understanding of the ways climate is changing and the ways people—agencies, tribes and communities—can adapt for the better.

This human element of climate change has long been a focus of indigenous peoples such as the Swinomish Indian Tribal Community of Washington who rely on the natural environment for subsistence and autonomy. The Swinomish have identified their relationship with the local environment, their ability to fish, hunt and gather, as a central component of both their community's health and ability to self-determine. Both the health and the sovereignty of the Swinomish are determined by their continued relationship to the land upon which they live. "It is a way to think about climate change and community health with priorities already in place," says Jamie Donatuto, environmental health analyst for the Swinomish Tribe. "The climate change concerns of the Swinomish are reflective of many tribal communities in the Northwest…an increasing concern about the future of our social, cultural and environmental stability."

Swinomish researchers are working to determine the effect of climate change on namely shellfish health and shoreline armoring and how changes in those areas will affect the health of the tribe.

Food is also an area of particular concern, and one project is using TEK to establish traditional gathering practices. From there, researchers will try to determine if climate change is affecting the gathering calendar.

Sharing what is learned from these pilot projects is of interest to tribal and non-tribal entities locally, regionally, and nationally. The Pacific Northwest Tribal Climate Change Project (TCCP) is helping track these pilot projects and communicate their progress throughout the country through online project profiles. TCCP is a collaboration between the University of Oregon Environmental Studies Program and the USDA Forest Service Pacific Northwest Research Station. □

AMANDA FORTIN, External Affairs, Pacific Region, and John Mankowski, NPLCC

Special thanks to Carson Viles and Kathy Lynn from TCCP for input, review and collaboration.

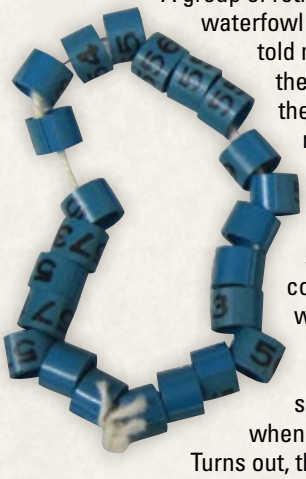
? MORE INFORMATION

Pacific Northwest Tribal Climate Change Project <bit.ly/ehNQtp>

MUSEUM OBJECTS COME TO LIFE

This is the third in a series of curiosities of the Service's history from the National Conservation Training Center Museum. As the first and only curator of the museum, Jeanne M. Harold says the history surrounding the objects in the museum give them life.

Bird Bands



A group of retirees attending a migratory waterfowl meeting at NCTC once told me a great story about the biologists who drew the waterfowl migration maps still used today. To establish the routes, they would band and dye different species specific colors when they were up in the Arctic. That way they could easily spot them by color when they migrated. Turns out, though, that the native hunters in Alaska were quite put off by seeing bright purple and pink geese! Seeing our collection of bird banding items reminded them of that amusing tale.

Harry Potter Hoo

Who can guess which object in the Service archives is ooohed and aaahed over by children more than any other? Our snowy owl mount. He is fluffy, beautiful and covered in snowy white feathers. He is so very beloved by youngsters, however, because he may very well be Hedwig, the pet owl of a certain wizard named Harry Potter!

Got a Light?

Some of our objects are quite small but pack a big punch of irony. Take, for example, the diminutive Zippo lighters adorned with the U. S. Biological Survey logo. These were given out back in the day as, get this, safety awards. Hope they didn't raise the level of cancers, or cause any forest fires!

You Picked a Fine Time to Sightsee, Lucille

My favorite mounted specimen in the museum is Lucille, a little black-footed ferret with a sly grin. She was killed one night back in 1981 by Shep the ranch dog in northwestern Wyoming, when she passed too close to Shep's home base. The rancher discovered her limp little body the following morning and tossed it over the fence. His wife, Lucille, however, asked him to retrieve the little furry critter because she was curious and was then so intrigued that she decided to have it mounted. The taxidermist informed them that the specimen, eventually named Lucille, was an "extinct" species, the black-footed ferret! Wyoming Game and Fish Department and Service biologists came to investigate, found a colony of ferrets, captured some later in 1986-1987 for captive breeding, and now the black-footed ferret population numbers 500-1,000 at 21 reintroduction sites in eight Western states, Mexico and Canada and 300 in captivity at six North American zoological facilities. Little Lucille may have unwittingly and unwillingly sacrificed herself for her species and thereby saved it from extinction because of a ranch dog that was intolerant of any intruder.

Fighting Back

Service's Ivory Crush brings hope for elephants devastated by ivory trade

Last year more than 35,000 elephants were slaughtered for their tusks. Images of these elephants haunted me as I toured the Service's National Wildlife Property Repository, near Denver, Colorado, Located in the center of the Rocky Mountain Arsenal National Wildlife Refuge, the repository resembles an industrial warehouse—a building so plain you would never guess what was inside that November day: nearly 6 tons of confiscated elephant ivory—waiting to be crushed.

GAVIN SHIRE / USFWS

Since the Ivory Crush, other nations including China and France have destroyed ivory.

For more than 25 years, Service Law Enforcement officers added to the pile, seizing pieces during undercover investigations or confiscating them at the U.S. border.

Unfortunately, the poaching crisis has spun out of control. "Rising demand for ivory is fueling a renewed and horrific slaughter of elephants in Africa, threatening remaining populations across the continent," U.S. Secretary of the Interior Sally Jewell says. Currently African elephants are listed as threatened under the Endangered Species Act and Asian elephants are listed as endangered, yet the killing of these imperiled species continues.

In the stockpile, I saw hundreds of ivory figurines, bracelets and trinkets. Next to them were wooden pallets laden with carved tusks, stacked according to size. The adult tusks, obvious from their strength and thickness, were sad enough, but I also saw a surprisingly large number from juveniles and babies—heartbreaking victims of the illegal wildlife trade. It's hard to imagine that our nation would contribute to such brutality, but the truth is we are a major player in the global market.

"The United States is part of the problem, because much of the world's trade in wild animal and plant species—both legal and illegal—is driven by U.S. consumers or passes through our ports on the way to other nations," Service Director Dan Ashe says. "We have to be part of the solution. The species and habitats of our planet support billions of people and drive the world's economy. We all have a stake in ensuring their survival."

As I watched our nation's stockpile being pulverized by an industrial rock crusher I couldn't help but find hope for the future of elephants. In July, President Obama issued an Executive Order to expand our nation's efforts in combating the illegal wildlife trade and we are working with the Presidential Task Force on Wildlife Trafficking to develop government-wide strategies that crack down on poaching. We are also providing critical financial and technical support to on-the-ground projects, and nations around the world are joining in the fight against the illegal wildlife trade.

But we can't do this alone. We have to have everyone's support. To learn more about the Service's International Affairs Program visit <www.fws.gov/international> or follow @USFWSInternatl and #ivorycrush on Twitter.

The elephants, the Service and I thank you. □

CHRISTINA MEISTER, External Affairs, Headquarters

pacific

'The Waiting is the Hardest Part': Short-tailed Albatross's Mate Finally Shows up at Midway

With cooler temperatures at Midway Atoll National Wildlife Refuge, about 1,200 miles northwest of Honolulu, Hawaii, come the birds.

The end of October marked hourly arrivals of black-footed albatross and the return of thousands of Laysan albatross. Of special note was the return of two golden, gooney faces—the extremely rare and endangered short-tailed albatross.

On October 27, Dale Chorman and Konrad Schaad with SeeMore Wildlife Systems walked to their remote camera work-site on Eastern Island—only to be greeted by a striking short-tailed albatross in full plumage. The young adult male was resting within feet of where he and his mate previously reared a chick.

This adult male was banded as a fledgling on Torishima Island in 1987 and has been returning to the same spot on the refuge since 1999.

After a few weeks, his mate finally joined him. Since her arrival, they've been busy preening, building their nest and laying their egg!

DALE CHORMAN/SEEMORE WILDLIFE SYSTEMS

This male (yellow head) and female short-tailed albatross are reunited at Midway Atoll NWR.

A chick hatched on January 9.

"We have tried for years to attract a nesting pair using decoys and restoring nesting habitat," says biologist Pete Leary, "so the potential for Midway to play a small role in helping sustain an amazing endangered species is rewarding and encouraging."

In the fall of 2011, this now 26-year-old male waited in the same area for the arrival of his 9-year-old mate. She appeared days later, soon laid an egg that successfully hatched on November 9, 2011, the second recorded albatross chick hatched outside of Japan. Their fledgling was last observed exercising its wings in preparation for takeoff on June 12, 2012. In the fall of 2012 the two birds reunited again but did not incubate and rear a chick.

A second male short-tailed albatross has also returned to the island.

Once one of the most abundant albatross species in the North Pacific with a population of more than 5 million adults, the short-tailed albatross was hunted down and harvested for feathers and eggs, and by the mid-1900s the species was believed extinct. A few breeding pairs were found in the 1950s, and now, thanks to recovery efforts, the short- tailed albatross population is estimated at about 2,300. □

southwest

Non-Eagle Feather Repositories Permanently Established in the Southwest Region

For hundreds of years, Native Americans have used wildlife and other natural resources for subsistence, as well as for cultural and religious purposes. Migratory birds play a unique and significant role in tribal culture, especially in American Indian spiritual and religious beliefs and ceremonies. The feathers and parts of many migratory birds are fundamental to most Native American tribes.

The Service's National Eagle Repository (NER) has assisted many tribes and tribal members in securing eagle feathers for American Indian religious and cultural uses. But feathers and parts from many other birds are also central to tribal practices. Until the late 1990s, the NER also distributed feathers and parts of other protected and regulated migratory birds.

Those non-eagle feathers and parts were some of the most sought after objects by tribal cultural and religious practitioners, and without the NER there developed a tremendous unfilled need for legally obtained non-eagle bird feathers and parts for Native American practices.

That is until 2010, when the Service's Southwest Region established a pilot non-eagle feather repositories program in partnership with the Comanche Nation Ethno-Ornithological

JOE EARLY/USFWS

From left, woodpecker feathers on rattle, American kestrel tail fan, red-tailed hawk fan, anhinga tail fan with macaw feather, scissor-tailed flycatcher fan, red-shafted flicker tail fan.

Initiative (Sia in Cyril, Oklahoma) and Liberty Wildlife Rehabilitation Foundation (Liberty Wildlife in Scottsdale, Arizona).

"We clearly had a responsibility to provide a way for Native American tribal members to access these important components of their religious and cultural practices," says Southwest Regional Director Dr. Benjamin Tuggle. "Once we partnered with Sia and Liberty Wildlife, we knew we could make our vision a reality."

Both partners were issued permits to salvage, receive and distribute regulated migratory bird feathers, deceased birds and parts from legal sources. And the requests for non-eagle feathers and parts began pouring in from federally enrolled tribal members across the country.

After a successful two-year pilot program, theSouthwest Region announced that the two non-eagle feather repositories and distribution program will continue on a permanent basis.

"The Southwest Region has a long and proud tradition of working in partnership with tribes," says Tuggle. "I am deeply honored to have permanently established these two non-eagle feather repositories that support Native American religious and cultural traditions for tribes nationwide."

The Sia non-eagle feather repository had been a longtime dream for the Comanche Nation in Oklahoma. Sia's Founder and Director William Voelker remembers submitting a proposal to the Service as early as 1973.

"Native Americans meeting the needs of Native Americans through a partnership with the U.S. Fish & Wildlife Service has been our mantra since I submitted that first proposal," he recalls.

Voelker characterizes the Sia Essential Species Repository as having "a profound responsibility to meet the traditional, spiritual needs of members of federally recognized tribes while honoring a unique partnership with the Service's Southwest Region."

Liberty Wildlife's repository is part of a wildlife rehabilitation and conservation education center. Executive Director Megan Mosby has established a Native American advisory committee and regularly consults with them on issues important to the non-eagle feather repository.

"Operating the non-eagle feather repository has been an amazing experience for all of us at the Liberty Wildlife Rehabilitation Foundation," reports Mosby.

Mosby calls it a privilege to provide tribal members with important—and sometimes rare—items that are integral to their spiritual and cultural ceremonies.

Over the last several years, the Oklahoma and Arizona repositories have filled requests for 2,295 feathers, parts and whole bird species to Native Americans across the country. The two repositories combined have provided items for members of 265 tribes in 40 states. The Sia and Liberty Wildlife repositories operate independently of each other.

"We take our tribal trust responsibilities very seriously," notes Tuggle, "and we are committed to continuing and strengthening our tribal partnerships."

Find out more about the Southwest Region non-eagle feather repository program at: <www.fws.gov/southwest/NAL/feathers.html>. □

CHARNA LEFTON, External Affairs, Southwest Region

midwest

Bats and People Find Indiana's Wyandotte Cave the Place to Be

Wyandotte Cave in Indiana provides a colorful example of the shared history of Indiana bats and people.

There were about 1 million Indiana bats at the time the species was added to the first list of endangered species, created under the Endangered Species Preservation Act of 1966—precursor to the current Endangered Species Act. That sounds like a lot, but at one time, there were probably tens of millions of Indiana bats, and Wyandotte is a large and complex cave, typical of caves known to have supported tremendous numbers of Indiana bats.

These large caves also attracted another mammal…humans.

Native Americans started using Wyandotte Cave more than 3,000 years ago, mining chert and other minerals, as well as using the cave for shelter. Early settlers mined the cave for Epsom salts and during the War of 1812 for saltpeter, used to make gunpowder. Later, entrepreneurs stored onions in the cave to corner the onion market. The venture failed, but the smell of onions endured for more than 30 years. Wyandotte may even be inhabited by the ghost of a counterfeiter who met his end in the cave.

The bats endured these human uses, but one chapter in the cave's history came close to wiping them out—tourism.

ANDREW KING/USFWS

Endangered Indiana bats at Indiana's Wyandotte Cave have lived with humans for years.

Wyandotte became a commercial tourist attraction in the 1850s—its large size and spectacular formations made it one of the grandest show caves in the country. As visitation increased, the owners modified the cave, enlarging passages to open new areas and installing gates to control access. The combined effect of these alterations, which changed the cave's air temperature and hindered the bats' access, along with disturbance from visitors, devastated the bat population.

By the early 1950s, bat numbers at Wyandotte had dropped to about 15,000. By the mid-1950s, after construction of a stone wall in the cave entrance, the population plummeted to as few as 500 bats.

The year 1966 was a turning point for Wyandotte's bats—the Indiana Department of Natural Resources purchased the cave and the Endangered Species Preservation Act was passed. Listing the Indiana bat focused attention and research on causes of its decline. The state began managing to reverse declines, including removal of the stone wall. The Indiana bat population responded—increasing to 13,000 by 1991.

Fast forward to now, O'Bannon Woods State Park is home to Wyandotte Cave, and the park staff are careful stewards of the cave and its bats. Wyandotte supports almost 57,000 Indiana bats, one of the largest populations of the species. Unfortunately, white-nose syndrome (WNS), a disease devastating cave-hibernating bats, was confirmed in Wyandotte in 2011. Wyandotte has become a major hub of WNS research, providing information that may help manage the disease.

These bats have endured a lot through the years…mining, onions, torch-bearing tourists and possibly even a ghost. Now, they have to endure white-nose syndrome. □

LORI PRUITT, Bloomington Ecological Services Field Office, Midwest Region

southeast

Learning and Teaching the Work of the Service

When Dr. Alberto Puente first arrived at the Service's Panama City Field Office in Florida, he knew he was in for a whole new experience. A biology professor at Interamerican University in Puerto Rico, Puente was familiar with the conservation work of the Service. But he wanted to know more. In particular, he wanted to study something that drives much of the Service's conservation: the Endangered Species Act. "The U.S. Fish and Wildlife Service has a field office in Puerto Rico. But I wanted to learn about the process," says Puente. "I knew that learning about the Endangered Species Act could benefit my students in the future."

Puente spent three weeks in the Panama City Field Office as a fellow under the Summer Faculty Fellowship Program. This summer program brings in professors from minority-serving universities to field stations across the nation for a brief immersion in ecological services, including habitat conservation. The professors, in turn, return to their schools to create the next generation of conservationists and a direct pipeline of diverse talent to the Service. Panama City Field Supervisor Dr. Don Imm was pleased to host Puente at the field office. "I knew he had some exposure to our agency. But as a fellow, he could take his knowledge to a whole new level," says Imm.

Puente stayed busy with a jam-packed schedule in Panama City. He spent some days on sea turtle patrol, looking for turtle tracks called crawls and surveying

Dr. Alberto Puente holds a sturgeon.

nests. Other days were spent sampling for Gulf sturgeon. Puente joined botanist Dr. Vivian Negron-Ortiz for plant surveys. He also spent his nights at Tyndall Air Force Base, looking for reptiles. "I had a pleasant experience in Panama City," says Puente. "I learned so much about species management and how it's driven by the Endangered Species Act."

With Puente's three-week fellowship over, the real work is just beginning. His next assignment is translating what he learned in Panama City to his many students at Interamerican University. Puente wants to add endangered species work into his curriculum so students will consider employment with the Service. He already has a plan for doing just that.

"I will be giving students one-hour talks about endangered species work during Science Week. I will integrate what I've learned into the classroom," says Puente. "I also will identify students who can participate in the Pathways program helping interns become full-time Service employees."

Imm and the Panama City Field Office plan to maintain a strong connection with Puente, as well as Interamerican University. "Dr. Puente can serve as our eyes and ears for potential candidates for Service jobs. The Summer Faculty Fellows Program is an absolute win-win for our agency and students who seek a career in conservation," Imm says. □

DENISE ROWELL, Panama City, Florida, Ecological Services Field Office, Southeast Region

USFWS

Alcoa Power Moves to Protect Rare Plant Found Only Along North Carolina's Yadkin River

In the shadow of the 96-year-old Narrows Dam, biologists fanned out across the rocky banks of the Yadkin River in North Carolina in the fall 2013 searching for the Yadkin River goldenrod, a plant once lost to science and only found sporadically along a 2.5-mile stretch of shoreline on the Stanly-Montgomery county line.

The plant's only known population in the world occurs on the banks of Falls Reservoir on land owned by Alcoa Power Generating Inc. (APGI). The company recently signed an agreement with the Service to help ensure the wildflower doesn't go extinct and has every opportunity to thrive.

"We saw an opportunity to do some simple things that would mean a lot for the future of the river's namesake goldenrod," says Karen Baldwin of APGI. "By being good stewards of this plant now, we're doing our part to keep if off the endangered species list in the future."

The Service is making strides toward proactively conserving rare species before they need to be listed on the federal endangered species list. Taking steps to conserve a plant or animal before listing enables and encourages states, private landowners, federal agencies and other partners to play a central role in determining the best way to conserve these at-risk species. Such an approach is cheaper than trying to recover plants and animals that have declined further, and it avoids the need for increased protections afforded by placement on the endangered species list.

Yadkin River goldenrod only has one known population.

MISTY BUCHANAN / N.C. NATURAL HERITAGE PROGRAM

"This is a good example of how we can work together with the private sector to proactively conserve species to the point where federal protection is not needed," said Leopoldo Miranda, the Service's Assistant Regional Director for Ecological Services in the Southeast Region.

As part of the agreement, called a Candidate Conservation Agreement, APGI will annually control invasive exotic plants such as Mimosa, privet, bush honeysuckle and Japanese honeysuckle that threaten to outcompete the rare goldenrod. It will also post signs warning off anglers who might be tempted to leave their boats, venture onto the APGI-owned shoreline and trample the goldenrod. APGI will also support efforts to annually monitor the plant's well-being.

The Service will work with the N.C. Plant Conservation Program to explore opportunities to harvest and spread seed to boost the existing population.

The goldenrod was first discovered in 1894 and wasn't seen again for a century until two state biologists independently rediscovered it in 1994.

"At one point, we considered this species safe because of the low-level of threats, however in more recent years that has changed," says Mark Cantrell, a Service biologist. "Threats are increasing, and thankfully APGI wants to step in to help." □

northeast

Repair and Prepare: Service's Multimillion-dollar Post-Hurricane Sandy Effort

On October 24, just before the one-year anniversary of Hurricane Sandy, Secretary of the Interior Sally Jewell announced $162 million to help Atlantic Coast communities better withstand future storms. The lion's share—more than $100 million—of that funding went to the Service to implement resiliency and restoration projects up and down the coast.

Over the next three years, the Service will work with states and other agency partners in the Northeast Region to complete 30 coastal resiliency projects in areas hardest hit by the 2012 superstorm. These projects will restore marshes and beaches, improve aquatic connectivity in rivers and streams, and provide the science needed to make sound conservation decisions now and in the future.

"What we witnessed during Hurricane Sandy was that our public lands and other natural areas are often the best defense against Mother Nature," Jewell said in announcing the funds at Edwin B. Forsythe National Wildlife Refuge in Oceanville, New Jersey.

Interior Secretary Jewell's announcement of the resiliency funding followed an announcement in May, when the Service received $65 million in Hurricane Sandy relief funding for construction and debris removal projects to recover from damage

sustained during the storm. Many of these projects are underway at national wildlife refuges, including major debris clean-up efforts at E.B. Forsythe refuge and several refuges on Long Island, New York.

With a total of $40 million from both the construction and resiliency funds, a major marsh restoration project will be completed at Prime Hook National Wildlife Refuge in Delaware. Additionally, refuge roads, buildings, boardwalks and trails have been or will be repaired. Back-up power sources, many fueled by solar energy, will also be installed at several refuge locations.

Devastating weather events are predicted to increase and sea levels will continue to rise. By increasing resiliency through restoration of coastal marshes, beaches and dunes; providing aquatic connectivity in streams and rivers; and cultivating strong science-management partnerships through Landscape Conservation Cooperatives, this investment will help wildlife, communities and economies weather the storm and thrive for generations to come.

Follow the projects at <www.fws.gov/hurricane/sandy>. □

TOM STURM, Public Affairs, Northeast Region

Debris clean-up begins at the E.B. Forsythe Refuge in New Jersey.

CLAY STERN/USFWS

Urban Oases Project Designated as New Haven Harbor Watershed Urban Wildlife Refuge Partnership

In October, the Urban Oases project in the New Haven Harbor Watershed became the latest Urban Wildlife Refuge Partnership.

With 80 percent of Americans living in cities, the Service's Urban Wildlife Refuge Initiative is working to forge connections among the National Wildlife Refuge System, natural resource conservation and people living in urban areas.

The New Haven partnership aims to expand habitat for migratory birds and other species in suitable areas and raise public awareness about the local watershed, Long Island Sound, and the linkages between urban green space and nearby public lands such as the Stewart B. McKinney National Wildlife Refuge.

Partners include Audubon Connecticut, the New Haven Urban Resources Initiative, the Yale School of Forestry & Environmental Studies, New Haven Parks, Recreation and Trees, Common Ground High School, Urban Farm and Environmental Education Center, the Yale Peabody Museum, New Haven Public Schools and local neighborhood groups.

Students have already begun to create wildlife habitat gardens in schoolyards and their local community, volunteers are establishing wildlife habitat plantings in city parks, and schoolchildren working with partners are developing educational signs and exhibits to inform the public about benefits to creating and maintaining wildlife habitat in their communities.

"The schoolyard habitats we are creating through the Urban Wildlife Refuge Partnership are powerful educational tools that reinforce academic concepts through hands-on experiences with nature," says Melissa Spear, executive director of Common Ground High School, Urban Farm and Environmental Education Center.

"We must reach out into cities to ensure that all Americans have the opportunity to develop a true connection with wild things and wild places. Our Urban Wildlife Refuge Partnerships will help us engage communities where we haven't had much of a presence," says Service Director Dan Ashe. □

Above: Service Director Dan Ashe and Northeast Regional Director Wendi Weber (kneeling) unveil the designation sign with students from Common Ground High School and Barnard Environmental Studies Magnet School.

mountain-prairie

American Burying Beetles from Nebraska on Their Way to Ohio

The Service, University of Nebraska at Kearney, Nebraska Game and Parks Commission, and Henry Doorly Zoo in Omaha teamed up for a few days in September 2013 to collect 40 endangered American burying beetles in the Nebraska Sandhills.

Partners collected the beetles by setting 20 pitfall traps baited with rotten rat carcasses—a stinky but necessary proposition to capture a species attracted to the smell of decaying flesh. More than 120 beetles were trapped over three days. The chosen beetles—20 male and 20 female—were shipped to the Cincinnati Zoo in Ohio. It's expected that they'll mate, and their offspring will be released in Ohio by the Ohio Division of Wildlife, Cincinnati Zoo and The Wilds this summer.

JAMIE JONES/USFWS

USFWS

"It was a great team effort, we all pulled together to gather these unique insects," says Robert Harms, a fish and wildlife biologist at the Nebraska Ecological Services Field Office in Grand Island.

Efforts to reintroduce the beetle to Ohio have been going on for some time now but with little evidence of success. The beetles can travel up to five miles a night, making monitoring for success difficult. Nebraska beetles were used because they tolerate cold winter conditions better than beetles collected in warmer climates like Arkansas and Oklahoma. Once reintroduced in 2014, the Nebraska beetles will be monitored to determine if the reintroduction was successful.

Below: Trace Hardin of the Henry Doorly Zoo removes the bait consisting of a rotting rat from a pitfall trap. **Left**: American burying beetles were once widespread across the central and eastern United States.

The beetle recovery plan calls for reintroduction and/or discovery of three self-sustaining beetle populations in four geographic areas: the Midwest, Great Lakes, Northeast and Southeast. Ohio is part of the Great Lakes Recovery Area, and despite extensive surveys, no wild beetles populations have been found there. Reintroduction of the beetle is the only option available for reestablishment and ultimately, recovery of this unique insect.

The American burying beetle is the largest carrion beetle in the United States and can be easily identified by an orange mark on its pronotum (the segment between the head and the body). Active at night, males and females are attracted to carrion. On discovery of the appropriate-sized carcass, they mate and bury the carcass. The female lays eggs on the carcass, and both male and female care for developing larvae until young beetles, referred to as tenerals, emerge in about 40 days.

American burying beetles require large unfragmented habitats free from land disturbance, which can favor the presence of other competitive scavengers. The species is a recycler, hastening the release of nutrients and minerals back into the soil. □

STEVE SEGIN, Public Affairs, Mountain-Prairie Region

alaska

Kodiak Refuge Embraces Climate Change Outreach

"Ride your bike instead of driving," "Use a rake instead of a leaf blower," "Play outside instead of watching TV or playing video games."

These are just a sampling of ideas about how to reduce carbon footprints from youth who completed a climate change program in 2013 at Kodiak National Wildlife Refuge.

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At the end of the program, participants have a carbon cycle keepsake. Seasonal Ranger Rory Psotka made a monocle out of his.

Climate change is a complicated and controversial concept so it can be daunting to tackle in public outreach and education. But climate change affects almost every aspect of the Service's conservation mission, so it's important for the Service to take on the challenge, open up a dialogue and encourage positive actions.

Kodiak Refuge launched a series of climate change programming in the summer. In preparation, all seasonal staff and Youth Conservation Corps crew went through climate change training:

ANELISE ZIMMER/USFWS

Science campers playing Heat Trapper Tag, a game that illustrates the greenhouse effect.

a presentation broken up with short videos, activities and a field trip to learn about local research on impacts of ocean acidification. Pre- and post-training assessments showed an improvement in staff knowledge about the concepts of climate change as well as the Service's climate change strategies.

During the training, staff participated in an environmental education program that some then used while working with youth. Kodiak's climate outreach efforts featured an evening presentation geared toward an adult audience, an afternoon program for elementary school students led by YCC members and one day a week dedicated to the carbon cycle at summer science camp. Science campers completed a worksheet on Monday and again on Friday to help assess the program's strengths and weaknesses. The climate change program is now offered for school visits.

A lot of behind-the-scenes preparation went into the climate change outreach. Staff attended the North American Association for Environmental Education conference, and performed online training and research for programming ideas. The course *Earth to Sky: Communicating Climate Change*, offered by the Service's National Conservation Training Center, provided the final confidence and inspiration needed to move forward.

Kodiak hopes to expand and further develop its climate change outreach. For more information, contact Kodiak's education specialist Shelly Lawson at Michelle_Lawson@fws.gov. □

Science and Culture Camp Celebrates 11th Year at Selawik

More than 150 kids from the Iñupiaq village of Selawik in northwest Alaska once again celebrated the natural history and cultural traditions of their homeland, much of which is encompassed by Selawik National Wildlife Refuge.

With the golden fall tundra spread out in every direction, kids checked fish nets, scaled and cut fish, picked cranberries, hunted caribou and seals, butchered moose, practiced with GPS devices, searched for aquatic insects, measured permafrost depth and sketched plants. Students in grades 1–12 participated, each for two days, dressing warmly for the 15-minute boat ride from the village to the camp. The Science-Culture Camp, which runs for two weeks, provides numerous opportunities for learning but remains relatively unstructured to honor one of the joys of outdoor life: freedom from strict time schedules.

The camp, now in its 11th year, is a cooperative effort by the Native Village of Selawik, the Northwest Arctic Borough School District and the Service. Funding is provided by the Service with additional contributions from other organizations and businesses, including the Northwest Arctic Borough, NANA Regional Corporation, City of Selawik and Alaska Airlines. □

Selawik youth cut moose meat for the camp's lunch.

SUSAN GEORGETTE/USFWS

pacific southwest

Smart Planning Completed for Development and Habitat Conservation for Santa Clara Valley

California is a really big state. Even for people who live here it's easy to forget just how big it is, to under-emphasize how diverse its landscape is and to downplay how overwhelming addressing the multitude of environmental challenges faced in a single area can be. Add the areas on either side and the competing politics of the day, and you'll wonder how anything ever gets accomplished.

The answer—vision, shared goals for progress and a lot of hard work, all of which have happened and continue to happen in Santa Clara Valley.

Vision

More than a decade ago, when concerns about the threatened Bay checkerspot butterfly could have significantly delayed important development in the Bay Area, the Service suggested development of the Santa Clara Valley Habitat Conservation Plan.

With the help of the Service and the California Department of Fish and Wildlife, the county of Santa Clara partnered with the cities of San Jose, Morgan Hill and Gilroy, the Santa Clara Valley Transportation Authority, the Santa Clara Valley Water District and other local agencies to develop a habitat conservation plan/natural community conservation plan.

JOSH HULL/USFWS

The Bay checkerspot butterfly prompted development of the Santa Clara Valley Habitat Conservation Plan.

Shared Goals for Progress

The Santa Clara Valley Habitat Conservation Plan will help preserve more than 46,000 acres of vital habitat for some of the area's most threatened species. It will also allow some development and provide a streamlined process to permit projects in an area of about 460,000 acres, less than 18,000 of which will be impacted.

One of the most ambitious conservation efforts of the past decade in California, the plan will protect a majority of the Coyote Valley ridgeline, the last stronghold of the threatened Bay checkerspot butterfly and several threatened and endangered plants, such as Coyote ceanothus, Santa Clara Valley dudleya and most beautiful jewelflower. In total, 18 species will be protected. Nine of the 18 species are protected under the federal Endangered Species Act and four species have state Endangered Species Act protection.

USFWS

The Santa Clara Valley Habitat Conservation Plan will protect a majority of the Coyote Valley ridgeline, the last stronghold of the threatened Bay checkerspot butterfly and other imperiled species.

The plan will not only create a more efficient process for protecting and managing natural resources by creating habitat reserves, it will also strengthen local control over the permitting process.

A major upgrade at Anderson Dam, the water supply for San Jose, is one of the important projects that will benefit from the new streamlined process. In the event of a large earthquake, without this retrofit, roughly 1 million people could find themselves under several feet of water.

The plan will also create a more efficient process for smaller projects, such as individual home construction, eliminating the need for individuals to navigate the twists and turns that can come with addressing environmental issues.

Hard work

A planning effort as large has the Santa Clara Valley Habitat Conservation Plan needs both standard bearers and foot soldiers to see it from vision to reality. It only happened because of diligent work from staff and representatives of the various local jurisdictions, numerous stakeholders, the California Department of Fish and Wildlife, the Service—and the public.

And more work remains. What has taken a decade to plan will take 50 years to implement. But the partners are ready and moving forward. □

SARAH SWENTY, External Affairs, Pacific Southwest Region

400th Clapper Rail Released by Recovery Program

Biologists released seven endangered light-footed clapper rails into the UCSD Kendall-Frost Marsh Nature Reserve on November 19.

The event marked the release of the 400th captive-bred clapper rail to the wild, a milestone for "Team Clapper Rail," a public-private conservation partnership led by the Service.

Kendall-Frost Marsh is a 40-acre reserve nestled in a popular Mission Bay recreational area, owned and managed by the University of California, San Diego.

The hope is that these captive-bred birds will stay in the area and breed with other clapper rails that are known to live there, according to Brian Collins, a wildlife biologist and refuge manager for Tijuana Slough and San Diego Bay National Wildlife Refuges.

"This release into the wild of these endangered birds is cause for celebration," Collins says. "The 400th bird raised within this program…is evidence of the success of our cooperative endangered species recovery efforts."

The light-footed clapper rail is a marsh bird that grows to about 14 inches in length, and has long legs, long toes and a slightly down-curved beak that it uses to probe for invertebrates, clams, insects and other food.

LISA COX/USFWS

Left: Charles Gailband, breeding coordinator for "Team Clapper Rail," hands a captured clapper rail to a volunteer to prepare for transport to Kendall-Frost Marsh Reserve in San Diego. **Above**: Both male and female light-footed clapper rail are identical in plumage.

The released birds were raised in a captive breeding program, a partnership among three breeding centers (SeaWorld San Diego, the San Diego Zoo's Safari Park and the Living Coast Discovery Center in Chula Vista). Other important contributors to the species recovery program include the U.S. Navy, the Unified Port of San Diego, the California Department of Fish and Wildlife, Huntington Beach Wetlands-Conservancy, the UCSD Nature Reserve System and Mexican conservation organization Terra Peninsular in Baja California, Mexico.

The goal of these releases, explains Collins, is to maximize the genetic variability and demographic viability of the population, by maintaining and recovering sub-populations of these birds in each coastal wetland where they may be encountered.

"By recovering the clapper rail, by restoring the coastal habitats it depends upon, we also restore and recover vital ecosystems that benefit many other species, including people," Collins says.

The work is making progress.

A year after the light-footed clapper rail was listed as endangered in 1973, it was estimated that only 300 individual light-footed clapper rails remained in the wild in the United States.

Today, the U.S. clapper rail population in California has reached an estimated total of 525 mated pairs in 2013. That's the highest recorded number since monitoring of the species began in the early 1970s.

"Coastal wetlands are among the most productive and valuable habitats we have." Collins says. "If we can recover this species, in this context where great biodiversity is intermixed with millions of people living in urban environments, that means there is hope for other species and other habitats in other places as well." □

JON MYATT, External Affairs, Pacific Southwest Region

transitions

Alaska

COURTESY OF GEOFF YORK

STEVE LAYMON/USFWS

President Obama in November appointed Alaska Region Regional Director **Geoff Haskett** (far right) as the U.S. Commissioner for the U.S.–Russia Polar Bear Commission. Haskett has represented the United States since the commission's inaugural meeting in 2009. His leadership and commitment to science-based management and consensus building has been integral to the commission's progress on Alaska-Chukotka polar bear population conservation efforts on many fronts.

Since 2009, the commission has taken numerous precedent-setting steps including establishing sustainable harvest levels for subsistence use of the population and developing a cooperative U.S.-Russia research and monitoring plan for an area of more than 400,000 square miles. The U.S.-Russia Polar Bear Commission was established in 2000 under the Agreement on the Conservation and Management of the Alaska-Chukotka Polar Bear Population. This bilateral agreement between the United States and Russia committed both nations to improving polar bear conservation and safeguarding the cultural and traditional use of polar bears by native peoples in both countries. The commission, comprised of government and native representatives, two each from Russia and the United States, is responsible for implementing the conservation goals of the agreement. In December, Haskett headed up the U.S. delegation at a meeting of the polar-bear range states—United States, Canada, Denmark/Greenland, Norway and the Russian Federation—which convened in Moscow to discuss current and future challenges faced by the polar bear. At the Moscow meeting, the parties also celebrated the 40th anniversary of the 1973 Agreement on the Conservation of Polar Bears. □

Headquarters

Betsy Hildebrandt, a communications professional with more than 20 years' experience in the public and private sectors, has been named the Service's Assistant Director for External Affairs. Hildebrandt has been the agency's chief of staff since January 2011 and previously served in the Department of the Interior's communications office.

In her new capacity, Hildebrandt will provide strategic program direction and develop policy and guidance to strengthen and expand the Service's relations with the public, Congress, native American tribes, the media and conservation partners. She will assist the Director on communications concerning key policy issues, facilitate communication between the Department of the Interior and the Service, and provide support and advice to Service leadership at the national, regional and field levels.

"During the last several years, Betsy has been an invaluable part of our leadership team and now will bring a wealth of ideas and expertise to our communications efforts. The Service cannot accomplish its conservation mission without the strong support and involvement of Congress, the media, the public and our partners, so I'm excited to have Betsy guiding this vital component of our work," says Service Director Dan Ashe.

Hildebrandt earned a B.A. from Dartmouth College and has completed coursework at the John F. Kennedy School of Government at Harvard University.

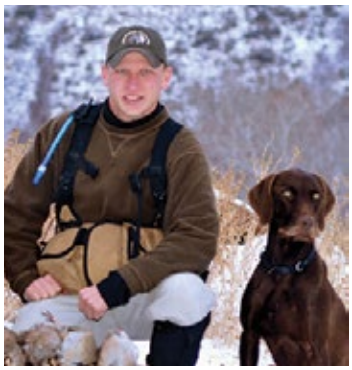
Hildebrandt lives in Washington, DC, with her husband and two children. She is an active outdoor enthusiast, and enjoys fishing, boating and hiking. □

honors

PROFILES IN DIVERSITY JOURNAL 2014 DIVERSITY LEADER AWARD

The Service has received the **2014 Diversity Leader Award** from *Diversity Journal* for the agency's work with nontraditional stakeholders. With the Nontraditional Stakeholders Engagement Platform, the Service looks to engage nontraditional and underrepresented communities as partners in civic and science-based initiatives associated with wildlife conservation. Some of the early partnerships formed through the platform include the National Association of Hispanic Journalists, Hispanics Enjoying Camping, Hunting and the Outdoors, Omega Psi Phi Fraternity and Kappa Alpha Psi Fraternity. Read the magazine: <bit.ly/IwlFvg>. □

Pacific



Idaho Sage Grouse Coordinator **Jason Pyron** of the Idaho Fish & Wildlife Office has won the Service's "Sense of Wonder" award in recognition of an outstanding project that connects people with nature and nurtures the public's stewardship of their natural resources for his project, "Sage Grouse in the Schools."

The project helped connect local landowners and high school students. Students made visits to local ranches aiding in activities such as fence flagging and habitat reseeding. Through the project, students were able to reconnect with nature while lending a hand at habitat improvement project implementation.

"At the heart of Jason's program success is his recognition that partnerships are foundational to strong conservation education, regardless of the issues, and youth and local community involvement are the key," says the award notification. "Jason excels at developing positive working relationships with state and federal government agencies, private landowners, NGOs, schools and other stakeholders." □

Southeast

Walter Duran, Conservation Law Enforcement Officer with the Service's Groveland, Florida, Law Enforcement Office, received a Medal of Valor from Melbourne, Florida, for rescuing an unconscious woman from her burning vehicle after an accident in March.

Officer Duran was traveling on U.S. Highway 192 in West Melbourne when he saw the burning vehicle. He immediately positioned his Service patrol truck, equipped with emergency lights, to block off the accident scene. He walked to the car and asked a bystander to hold the driver's spine while he attempted to free her. Her right leg was pinned underneath the dashboard, and the car's engine compartment was burning, with flames reaching the windshield. The flames could not be doused by a fire extinguisher, so Officer Duran entered the car and freed the driver's leg. Someone then helped Officer Duran remove the woman from her vehicle and carry her to safety.

The woman and her child, who was pulled from the rear seat earlier by a bystander, survived the accident.

In late August 2011, Officer Duran, assisted by a police officer from the Melbourne Police Department, rescued five boaters on the Indian and Eau Gallie rivers.

In October 2007, when Officer Duran was a refuge officer with the San Francisco Bay National Wildlife Refuge Complex, he helped rescue a father and son after their Beechcraft Bonanza plane crashed in San Francisco Bay. □

in memoriam

Northeast

Dr. Glenn William Kinser Jr., retired Special Assistant to the Director of the National Conservation Training Center, passed away on August 12 at his home in Shepherdstown, West Virginia.

Glenn served in the Service's Headquarters Office from 1973 to 1977, where he was a specialist on the ecological impacts of nuclear power plants; headed a team of scientists who investigated the impacts of the proposed Storm King hydroelectric facility in New York for the Assistant Secretary; and served as acting Branch Chief of Permits and Licenses during a period when the large wetland fill project at Marco Island, Florida, was under review.

In 1977, Glenn became the field supervisor of the Annapolis, Maryland, Ecological Services field office. While there, Glenn helped establish the Service's Chesapeake Bay Estuary Program, which also served as the model for the Service's National Coastal Program, and when the program separated from the Ecological Services office, he followed it as the Estuary Program's field supervisor in 1988. From 1992 to 1993, Glenn served a detail with the National Fish and Wildlife Foundation in Washington, DC, working on the establishment of a challenge grant program for habitat restoration. Glenn became the first Chief of Training for NCTC from 1993 to 1998, and retired as the Special Assistant to the Director of NCTC after 29 years with the Service in 2003.

He is survived by his wife, Lillian Kinser; son Glenn Kinser III and wife Debra; daughter Kirsten Dickason and husband Robert; three grandchildren, Kailyn, Colleen and Catherine; two step-sons, Ronald and Steven Walter and their families; eight step-grandchildren; brother Robert Kinser; and the many employees he helped thrive in the conservation world.

Glenn was an accomplished wildlife wood carver and painter, primarily of birds. He was respected by his colleagues as an excellent scientist, independent thinker and innovator, mentor to many Service employees, and a great humorist. Many of Glenn's colleagues and former employees maintained enduring

friendships with him long after he retired—a testament to Glenn's stature and influence within the Service. Glenn was always a fighter for the resource and embodied the unofficial Ecological Services' slogan: "Save the Dirt." □

Dick Uptegraft: Refuge Manager, Biologist, NEPA Man and Dad

Service retiree Darrell "Dick" Uptegraft (age 82), my father, died peacefully on December 16 and was laid to rest at Fort Snelling National Cemetery in Minneapolis. Dick served four years in the Air Force during the Korean War. Born in Cadillac, Michigan, on December 8, 1931, he was the only sibling of 12 kids to earn advanced degrees: a B.S. degree from Western Michigan University, where he conducted research on the rare Kirtland's warbler, in 1955 and two Master's degrees (Forestry and Science) from the State University of New York College of Environmental Science and Forestry at Syracuse in 1959.

I had the privilege of interviewing my Dad for his Oral History, 10 years after he retired. He told many fascinating stories of his career with the Service, beginning with the receipt of a telegram in June 1959, from Boston, with a job offer as a refuge manager on Long Island, New York. He said, "Being a landlubber from Michigan, there wasn't much I knew about saltwater. But I thought it was a little bit of paradise out there on Jessup's Neck."

He recalled a 1959 outing with Elizabeth Alexandria Morton, whose family donated the land for the refuge that bears her name: "Ms. Morton would want to come out to the refuge. I would drive in and pick her up; she would spend a little time just down at the beach. We had this open jeep with big sand dune tires on it. She was kind of a frail, tall and thin lady. I guess what impressed me the most about her was, when I helped her out of the jeep, she got straightened around and she just stood in front of the jeep and looked out over Peconic Bay. She patted me on the shoulder and said, "Why don't you look down at the sand right where you are standing, young man?" I did, and I said, "What do you see Ms. Morton?" She said, "What I see is you, standing on that dune grass! Don't you know how long it took the good Lord to put that grass on that sand?" Right away, I stepped off that dune grass! Right away! She was a strong-minded, real nature lover and just extraordinary."

My Dad was also describing himself...strong-minded, a real nature lover and just extraordinary.

In 1961, our family moved to the newly established Erie National Wildlife Refuge in Pennsylvania, where Dad was the first refuge manager. An African-American college student came to work for the refuge one summer, but Dad couldn't find him a place to live in the surrounding towns. So he built a room on the back of our house and turned it into a bedroom for the student. I think that says a lot for Dad's kindness and inclusiveness, and "get the job done" spirit as a refuge manager.

We then moved to Tamarac NWR in northwestern Minnesota in 1965, for promises of "future positions with favor" as Dad took a position as Deputy Director of Work at the new Tamarac Job Corps Conservation Center. As the 256-man center was being constructed, our family of four lived in our Apache Raven canvas-sided camper, the back of a pickup camper, a nearby hunting lodge (for a shower and a bathroom) and an unheated fishing cabin, from July until the double-wide trailer arrived in January 1966. After just two years, it was time to move on.

Dad, "always ready for a challenge," served as refuge manager at Crab Orchard NWR in southern Illinois from 1967 to 1973. "As I remember, we had 94 permanent staff and about 100 temporaries to work the beaches and campgrounds, sewage treatment plant, railroad, fire department, farming program. I thoroughly enjoyed my time at Crab Orchard. It's a prime example of people being able to overlap and relate to wildlife. But half of the refuge was restricted access and highly controlled. The geese knew that the people couldn't bother them. It was like a Garden of Eden; you could just live among the deer and the geese. It was a tremendous area."

After short stints at the ES Field Office in East Lansing, Michigan, and back to Crab Orchard NWR, Dad transferred to the Regional Office in Minneapolis in 1976, until he retired in 1986 as the Regional Environmental Coordinator. Always wearing a shirt and tie, with the most-stylish polyester leisure suit of the times, Dick Uptegraft could also be seen wearing a white T-shirt with red letters: NEPA Man! "I considered that if there was a niche for me in the FWS, I liked this job the best. Personally, I feel that NEPA still influences how we do business in resource management. NEPA has a lot of 'will, shall, and thou shalt nots! Regional Director Jack Hemphill gave me 110 percent support for the implementation of the Act within Region 3. My work was most enjoyable when I got to work with the RD and solicitor in conference, bantering back and forth. I felt the best when the RD finally said, "Dick, what do you think?" He made me feel like a new man when he said that."

My Dad was one of the lucky ones to retire at age 55, and lived another 27 years to enjoy his retirement! His passions were fishing, deer hunting (every year), fishing (did I mention steelhead fishing?), and the great outdoors. He debated with the political pundits on CNN. He usually beat me in cribbage. Together, he and wife Ollie nurtured their perennial flower gardens with tender loving care. My Dad's laughter was infectious. Hail and farewell. □

CYNTHIA "CINDY" UPTEGRAFT BARRY, Deputy Assistant Regional Director of Ecological Services in the Pacific Region

Photo: The author, then an outdoor recreation planner in Refuges in the Northeast Regional Office, and her dad in 1984.

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parting shot

An adult whooping crane and a juvenile bald eagle square off at Necedah National Wildlife Refuge in Wisconsin.

BRUCE BARTEL

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